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ARTICLE I.

Reports of Cases in Surgery, with Remarks. By N. R. SMITH, M.D. Professor of Surgery in the University of Maryland.

Extirpation of Tumors of the Neck.—It will be recollected by the readers of this journal, that, some months since, several cases were reported by the writer of this article in proof of the practicability of extirpating such tumors of the neck, as locate themselves beneath the deep layers of the fascia of that region. I have it now in my power to add another instance of success, in a case of no small interest, justifying my strictures on the remarks of Mr. Burns upon this subject.

Mr. C., a man 48 years of age, from Petersburg, Va., presented himself in the Baltimore Infirmary for the purpose of consulting me in regard to a tumor of considerable magnitude located in the neck. His countenance wore an expression rather sickly and haggard; his pulse, being frequent and somewhat quick, gave evidence of some constitutional disturbance; his tongue exhibited a white coat, and he represented his appetite to be indifferent. His voice was somewhat altered, and his breathing through the nostrils in some degree impeded. From the left nostril there occasionally occurred an offensive discharge.

On the left and anterior part of the neck, there existed a tumor of the size of a man's fist. It had insinuated itself beneath the anterior border of the sterno-mastoid muscle, and expanding the

fibres of that organ, had thrust it forward and outward. The main body of the tumor was above the course of the omo-hyoid, but this muscle crossed anteriorly its inferior extremity, and had probably, by its resistance, assisted to urge the tumor upward towards the angle of the jaw, near which its largest portion was lodged. The tumor had a lobulated feel, but in other respects was pretty well defined. It was evidently fleshy in its consistence, and was, in itself, but little sensitive when handled. It was the cause, however, of painful sensations shooting upward into the head, and downward into the chest. These were aggravated whenever the tumor was handled. The disease had been about eight months in progress, and its growth, at the time that it came under my observation, was rapid. Having consulted my friend, Professor Geddings, we came to the conclusion, that although the extirpation of the disease would be difficult, it was practicable; and, although it was not improbable that the disease might recur, we considered the operation practicable.

With the assistance of Professor Geddings, and in the presence of the pupils of the University and several medical friends, I performed the operation for its removal on the 25th of February. The first stroke of the knife divided the integuments parallel, and a little anterior to the border of the sterno-mastoid muscle, traversing the tumor longitudinally, and along its most prominent part. The superficial and deep-seated layers of fascia investing the tumor were next divided. The tumor itself was found enveloped in a proper covering of cellular tissue. This being opened, I proceeded with caution to dissect the tumor from the surrounding parts. This was rendered extremely difficult by the deep situation of the tumor, by its lobulated form, and the manner in which its lobes were insinuated into the surrounding parts. The ramus descendens noni was distinctly exposed in the early part of the operation, and was so completely involved in the envelopes of the tumor that it became necessary to divide it, a step which was attended with no peculiar consequences. It soon became manifest that the jugular vein and the carotid artery were so intimately connected with the tumor, as to require great care in the further use of the knife. The jugular vein was partly buried in the posterior part of the tumor, and some of its branches were spread over it, or penetrated it. I dissected the vein from this situation with great care, but in doing so necessarily divided some of its branches. One of these, near the angle of the jaw, gave us some trouble, but a small sponge compress quickly

arrested the hemorrhage. Another also sprung in the lower angle of the wound. I found it necessary to divide the omo-hyoid muscle where it crossed, like a ribbon, the lower part of the tumor.

It became manifest, as the operation progressed, (from the fact that I was obliged to dissect bare the very tunics of the vein, and from the fact that the nervus descendens noni was situated on the anterior part of the tumor,) that the disease had been developed in the tissue constituting the sheath of the great vessels. The carotid artery also lay in contact with the tumor, but in detaching and avoiding this vessel, there was no particular difficulty, since its firmness and pulsations rendered it, at every moment of the operation, perfectly manifest. But to avoid inflicting injury upon the vein required constant care; for when any degree of traction was made upon the tumor, in order to bring into view its deep attachments, the vein was necessarily dragged far out of its natural situation and relations, and being then entirely emptied of its blood, it presented precisely the appearance of some of the firm bands of tissue which were seen penetrating the tumor. A wound of this vein, under such circumstances, is well known to be a much more serious accident than a wound of the carotid artery.

I at length succeeded in completely disengaging the vein without injury, and in removing the tumor. The only artery which required a ligature was a small twig which issued from the parotid gland. The venous branches ceased to bleed.

The parts now presented the appearance of having been cleanly dissected, as if for a demonstration. The jugular vein and the carotid artery were denuded from the angle of the jaw nearly to the clavicle; the sterno-hyoid and thyroid muscles, the digastric, the stylo-hyoid, the submaxillary and parotid glands, &c. &c., were extensively exposed. The wound was closed with sutures and adhesive strips. The patient, for a few hours, experienced severe pain in the head, and endured some embarrassment of breathing and of deglutition, but on the whole, the case progressed favourably, and in two weeks the wound had completely healed, the greater part having been at once united by the first intention. I fear, however, a reproduction of disease.

Case II. *Femoro-popliteal Aneurism. Spontaneous cure of Popliteal, by the occurrence of Femoral Aneurism. Arteries diseased. Ligature of the Femoral. Hemorrhage on the* 11*th day. Separation of the Ligature on the* 19*th day. Recovery.*— The readers of this journal will recollect a case of popliteal aneurism occurring in the person of A. B., a scavenger, living in

Exeter street, O. T., related by me more than a year since, as having been relieved by the ligature. About two months and a half since, I was again requested, by my friend, Dr. Altvater, to see this patient on account of the occurrence of popliteal aneurism in the opposite limb. It will be remembered that there were some evidences of its incipiency at the time of the previous operation, but the depletion then suffered, repose for so long a time, and his abstinence from drink, had apparently, after he had again resumed his occupation, effected its removal. But a return to his potations, within the last six months, had impaired his general health,—reproduced and rapidly enlarged the tumor. At the time of my first examination of him, it was nearly as large as the first, though obscure in its outline from the swelling of the neighbouring parts. It pulsated strongly and was in itself so painful, while it inflicted so much irritation upon the surrounding parts, that he suffered almost constantly, and was incapacitated for labour.

I did not see him again for three or four weeks, when Dr. A. again requested my attendance. A femoral aneurism had now presented itself in the middle of the thigh, where the artery dips to perforate the tendon of the adductor. It had already assumed a size nearly as great as that which the popliteal had previously shewn, and pulsated strongly and painfully. A surprising change, however, had taken place in the popliteal aneurism; its size had greatly diminished, its pulsations were very feeble, and it had nearly ceased to give him any inconvenience. The femoral artery, below Poupart's ligament, appeared to be a little enlarged and felt rigid under the finger; his pulse at the wrist was full and hard. It was obvious that nothing but an operation could avail, and for obvious reasons we deemed the result of this doubtful. The patient, however, desired an operation and I considered it my duty to perform it. Dr. A. instituted suitable preparatory treatment—placing him at rest—taking blood occasionally—administering aperients, &c. &c. In three weeks we found his condition much more favourable in all respects; his pulse had become soft and healthy; there was less throbbing and hardness of the femoral artery; the aneurism pulsated less strongly.

I proceeded to execute the operation March 4th. I was assisted by Dr. A., Dr. Isaacs, Dr. Sproston, of the navy, and several medical pupils. After some little embarrassment from the cowardly and refractory conduct of the patient, I applied a single small silk ligature to the femoral artery, just below Poupart's

ligament. The cut was small and the artery disturbed in the smallest possible degree, but a very small opening being made in its sheath. I found its coats, in some degree rigid, and the vessel slightly enlarged.

After the operation, every thing appeared to be going on as well as could be desired. The wound closed, except around the ligature; pulsation ceased in the tumor, and never returned either in it or the popliteal aneurism; the patient was, in the meantime, occasionally bled; both tumors rapidly sunk.

On the 9th day, there was pulsation near the ligature giving me some anxiety, and there was an unhealthy aspect of the cut. On the 11th there occurred a furious gush of arterial blood, to the amount of ℔ij.; the pulse sunk; the foot became paralyzed and cold; there was a small tumor formed around the ligature; the wound presented a livid aspect; and there was much pain in the part. We applied the graduated compress and bound it firmly with a spica bandage. When re-action took place, blood was taken from the arm. The next day, (12th) he was comfortable—no pain—tumor in the wound less—limb warm—pulse small—ligature still attached. On the 13th, bled again in less quantity; pursued similar treatment, also wetting the dressings with cold water. His diet had been all along very simple and rest perfect. 15th day, bled again from the wound, ligature still refusing to come away. 17th, further bleeding; ligature still firm; he had been repeatedly bled from the arm.

I now twisted the ligature around a small cylindrical stick, and having rolled it up close to the wound, thrust lint beneath each extremity of the cylinder, so as to make constant traction on the ligature. On the 19th, the ligature separated with no bleeding. The wound immediately put on a healthy aspect, and the patient has since been doing well, without the slightest repetition of hemorrhage.

I learn from the Records of Surgery, that hemorrhage after the ligature, for cure of aneurism, has been by no means unfrequent, and that it has often been commanded by the compress, after so much blood had been lost as to very much subdue the pulse. Was the irritation of the ligature, lingering in the part, the cause of the bleeding in this case?

Case III. *Extirpation of the Testis. Death from Phlebitis.*—On the 25th ult. I was requested by a medical friend to give advice in a case of diseased testis. The patient was a spare man, of good habits, about forty years of age, and of a melancholic

temperament. Ten years previously the organ had been injured by the pummel of his saddle. Sarcocele had then resulted, for the treatment of which he had placed himself in the Baltimore Infirmary. A degree of relief had been obtained, but there persisted a degree of enlargement and induration of the organ. About four months before I saw him, the affected gland had begun sensibly to increase, and also to assume a schirrous hardness. It also became in a degree irritable, and began to prey upon the health and spirits of the patient. A very judicious course of treatment had been pursued for some weeks, but, although some symptoms were occasionally relieved, the disease on the whole had progressed, and was daily assuming a more malignant aspect. The tumour had a knotted feel, but in some parts a medullary consistence. The cord was not at all involved in any specific disease, although somewhat enlarged.

I fully concurred with my friend, the attending surgeon, in the propriety of at once extirpating the diseased organ. The operation was accordingly performed by me, on the 27th of March. It was accomplished with facility in the ordinary mode. The arteries of the cord were secured by carefully separating them from it, and I am confident that no vein was included in the ligatures. But a moderate quantity of blood was lost. The patient endured the operation with ordinary fortitude. Three ties of the interrupted suture were employed to close the wound. The patient was placed on his back, and the part carefully sustained by a soft compress and the T bandage.

On the next morning we found our patient doing well, though some pain had been suffered along the course of the cord. Means were employed to effect a movement of his bowels, which was easily accomplished. The case progressed favourably until the fourth day. I was then requested by his surgeon to see him on account of a considerable degree of irritation and swelling which had displayed itself in the groin. It had, however, already in a considerable degree yielded to the depletory measures. I found him suffering no more than the usual consequences of such an operation; indeed I considered our patient as nearly safe from any unpleasant consequences.

On the 9th after the operation, Dr. W. was called to Mr. R. in the night, on account of a sudden and violent inflammatory attack of the thoracic viscera. He had been seized with severe pain in the left side—the region of the heart—his breath had become exceedingly embarrassed—his pulse frequent, quick and bound-

ing, and there was a high degree of febrile heat and thirst. There was nevertheless but little cough or expectoration. Before I saw him he had been twice promptly and largely bled; and the blood taken exhibited a thick buffy crust. At each time of using the lancet the distressing symptoms had been obviously in a degree subdued. Twenty grains of calomel had also been exhibited, and by the aid of other means satisfactory evacuations had been obtained from the bowels. He was now on the use of antimonials, which were directed to be continued.

In the evening of the same day, his symptoms were not materially changed. His pulse, however, was softer, and, although his breathing was embarrassed, he complained of but little pain. On pressing the abdomen, tenderness was found to exist in the left lumbar region. The wound was found to be doing perfectly well.

In the course of the following night, Dr. W. was again summoned to our patient, on account of an aggravation of pleuritic symptoms. He found him suffering precisely as before, but with less strength to endure it. He was compelled again to resort to the lancet, and again the blood exhibited a strong buffy crust. He also directed enemata. I should have stated that a blister had previously been applied over the region of pain.

In the morning I again saw him. We then found his condition to be hopeless, his countenance being pallid and cadaverous; his pulse feeble, frequent and quick, while at the same time all the symptoms of local disease were in no degree abated; he died the following night. An effort was made to obtain an examination, but it was unfortunately not successful.

Although we had no post mortem evidence of the character of those lesions which may be supposed to have taken place in this case, yet it appears to me that there can be but little doubt that this man perished from phlebitis, propagated slowly along the veins of the cord. This probably commenced at the moment that the swelling and inflammation displayed itself in the groin. It passed along the cava till it reached the heart, and from that organ it was probably diffused to the surrounding parts, perhaps by the pulmonary vessels. The abatement of the local symptoms only shows that the irritation had migrated. I think that I am justified in these conclusions by the results of analogous cases, where post mortem examination has been made.

ARTICLE II.

Case of Scirrhus Uteri, successfully treated with the Tincture of Iodine. By J. ERSKINE PEARSON, M.D. of Fairfield District, South Carolina.

MAY 1st, 1833, I was requested to vist Edna, a mulatto girl, the property of D. Montgomery, Esq. aged about twenty-four years, whose general health had become so precarious as to disqualify her for any kind of business. On my arrival I was informed that she had not menstruated for a considerable length of time, was frequently complaining of uterine pain, accompanied with fluor albus—that she had from her puberty been unusually irregular in her menstrual function, and had frequently taken medicine, from a skilful physician, to little or no purpose. Knowing that this girl had been notorious for her indulgence in venereal pleasures, and that, although she had been married for some three or four years, her matrimonial connection had proved unfruitful, I suspected that she might possibly be labouring under organic derangement of the uterus. I accordingly proposed an examination, which was submitted to. The os uteri had a tuberculated feel, was indurated, tender to the slightest touch, and open. On withdrawing the finger, it was slightly stained with blood. From the recommendation of eminent physicians, I was induced to put her on the use of cicuta, 3 grs. three times per day, with 1-8 of a gr. of protoxide of mercury. This course was steadily pursued until about the 1st of June, and I saw her no more until the 25th, when her symptoms had somewhat improved. Thinking that I had given the hemlock a pretty fair trial, I concluded that I would next try the deobstruent powers of iodine, which was made into an alcoholic tincture, according to the formulary of Magendie. Of the tinctura iodini she took 5 drops, three times per day, increased one drop each day to 20, in a glass of sweetened water. After giving her 2 oz. of this tincture, I thought it prudent not to continue its use longer, least it might induce fatal emaciation. It was therefore laid aside, with the intention of resuming it again, if necessary, in the further treatment of the case; believing that a dangerous disease justified me in the use of what had been represented as a dangerous remedy. For the present I concluded to give her emenagogues, with a view of establishing the catamenia. On the 1st of August, she commenced taking pills composed of phosphate of iron, 5 grs.

aloes soccot: 1 gr. myrrh. 3 grs., 3 times per day, and 20 drops of the tinct. lyttæ, 3 times per day. This plan was continued for a few weeks, when her menses were restored. After the usual period was over, I omitted the emmenagogues, and ordered the tinct. mur. ferri. I heard no more from the case until about the 1st of October, when I was sent for in haste to visit the subject of it, as she was supposed to be dying. On my arrival I found no deviation from health in the pulse, but from her appearance as represented at the time, I judged that she had syncope. I ordered a hot pediluvium, and gave some sulph. æther, which soon restored her. I learned enough to induce me to suspect that she was breeding; and these suspicions were not long afterwards confirmed, as I was again called on in May to visit her, and was urged by her mistress, who had uncommon solicitude for her, to give her medicine for *dropsy.* I was pained to hear such news, fearing that all my efforts had proved fruitless; but to my surprise on examination, I found her far gone in pregnancy, and assured her that she would soon be cured of her dropsy, per vias naturales. My prognosis ultimately proved correct, notwithstanding such an event was so improbable and so unexpected, that her kind hearted mistress could not be induced to lay aside her scepticism on the subject, until Edna was delivered of a fine healthy boy, since which event she has enjoyed uninterrupted good health.

I forbear making any remarks upon this case, believing that its characters, and the result of the treatment are so obvious, as to require no comment. Others may speculate; my only aim has been to lay before the public an unvarnished statement of facts, with a view of assisting in the common effort to curtail the misery of suffering humanity.

Monticello, S. C., March 25, 1835.

ARTICLE III.

Case of Poisoning from Ergot, (secale cornutum.) By Isaac Hulse, M.D. Surgeon, United States Navy, Pensacola.

The effects here described occurred from an overdose of ergot, in a lady of delicate constitution, who has a peculiar idiosyncrasy against all the narcotics. The ergot used on this occasion, was supposed to have lost some of its activity from age.

Mrs. H. was delivered of a healthy male child, August 14th, 1834, at half past 8, A.M., after a labour of six hours. The labour pains were extremely violent, and in quick succession. She frothed at the mouth near their close, and the dilatation of the pupil gave to the eyes the expression of a vacant stare. The hemorrhage was profuse, and an attempt was soon made to take the placenta. It was found attached, however, and an effort to introduce the hand produced fainting. At this time ergot was given: ℞. secal. cornut. ʒ i. aqua bullient. ℥ viij. one-half of this infusion for a dose, the balance in five minutes. This caused a few contractions of the uterus, and the hemorrhage ceased. The patient was supported in her exhausted state with a few drops of tr. camphoræ, given occasionally. In this condition she remained till 11, A.M. the next day. During the interval she took a few drops of acetum opii, and slept about an hour. Ergot was now given, in doses as above, every half hour, until ℥ xii of the infusion had been administered. The uterus, which had been inactive for many hours, gave two or three strong contractions soon after the first dose, and then relapsed into a state of quiescence. At this juncture I resolved, notwithstanding the great sensibility of the parts, to introduce the hand, and take the placenta at all hazards. I reached the placenta, however, near the os externum, and finding it detached, brought it away without causing pain. I soon perceived that my patient was in a state approaching insensibility. The pulse was feeble, about sixty-five, and the limbs were covered with a cold sweat. Ordered wine and water. Shortly the palpebræ began to swell, likewise the lips and fauces; the tears flowed copiously; the Schneiderian membrane seemed much stimulated, and there was coryza, great difficulty of breathing through the nose, and injection of the vessels of the conjunctiva. The lips and palpebræ began to puff as if stung by a bee, and gradually assumed a livid appearance. The power of deglutition was now nearly lost; the voice became feeble; she said her jaws were fixed, and shortly after it was with the greatest difficulty that an answer of yes or no could be elicited. Previous to arriving at this point, she had complained of pain in every *nerve*, and a sensation of emptiness of the head.

I felt confident my patient had been poisoned by the ergot. I had a dose of sulphate of zinc prepared, but concluded it was doubtful whether emesis, at that late period, could be produced, as my patient gave evidence of great exhaustion, she having no power to move the lower extremities, and but very little control

over the upper. I gave carbonat. ammon. gr. v. dissolved in a wine glass of cold water, every half hour, and used frictions over the whole body and limbs, with the strongest liniment of ammonia. There was an amelioration after the second dose, the pulse rising, and the skin becoming warm; and after the third, the symptoms had so far subsided as to render it unnecessary to continue the remedies. On recovering the power of speech, she informed me that her head had seemed to be perfectly empty, and that the sense of hearing had become so heightened, that every word spoken, in the lowest tone, reverberated through the head, and passed through every nerve over the whole body. She seemed to herself to have been totally deprived of the natural warmth of the body, which was restored by the frictions. The symptoms all disappeared in a few hours, except the redness and tumefaction of the palpebræ; which remained in a slight degree on the following morning. As the pulse rose, and the patient recovered, there was a general perspiration, the matter of which emitted the peculiar fetor of ergot. She rose from her confinement without any untoward event.

Pensacola, March 7th, 1835.

ARTICLE IV.

Note on the Treatment of Congestive Fever. By Dr. A. B. Arnold, of Abbeville District, South Carolina.

[The following brief note, on the treatment of one of the most common and fatal diseases of our country, we extract from a friendly letter which we have had the pleasure to receive from the writer. It was not designed for publication; but coming as it does from one whom we have long known as a most skilful practitioner, we take the liberty to give it publicity through the pages of our journal, and hope that Dr. Arnold will do us the favor to communicate a full account of the form of fever which has prevailed in his neighbourhood.—Editor.]

We have had a severe form of congestive fever amongst us for two years, which has required very active purging, with bleeding, in the early stage of the disease, and blistering in the latter. I never stimulate, and when I find it absolutely necessary, in some protracted cases, to desist for a time from purging, I let my patients rest for a few days on spare diet, and if the congestion has not been entirely broken up, after the system has had an

adequate respite, and has recovered its energy sufficiently, I purge them again, taking care to produce consistent discharges. This course of practice has been almost universally successful. But where patients have not been sufficiently purged, no matter whether they were put upon the plan recommended by Broussais, or that of Daniell, or Minor and Tully, or any other course of stimulants, they have generally died. I have found bleeding in the first stage of the disease absolutely demanded. Some who have relied upon purging alone, have frequently lost their patients for the want of early bleeding, whereas those who have bled and purged under proper regulations, have been almost uniformly successful.

ARTICLE V.

Application of a Ligature to the common Iliac Artery of a Horse.

By the EDITOR.

As the operation of applying a ligature to the common iliac artery has not been often performed, the report of the following case, in which it was practised on a horse, may be worth recording. The accident which rendered the operation necessary, happened on the Washington race course, at Charleston, in 1824.

A servant on horseback met a gig, which was driven with such speed, that he found it impossible to rein his horse out of the way. The point of one of the shafts penetrated directly in front of the crest of the ilium of the left side, and ranging in an oblique direction, made its exit between the anus and the root of the tail. The shaft was not broken, and was immediately extricated. A torrent of blood instantly gushed from the wound, and continued to flow so rapidly, that the animal was affected with violent tremors, and was threatened with syncope. Being near at the time, I was called upon for assistance, and judging from the character of the wound, its direction, &c. I was induced to infer that the hemorrhage could only be commanded by the application of a ligature to the common iliac artery.

The horse was accordingly thrown on his back, by three or four stout negroes, and with the assistance of my friends, Dr. Graves, and the late Dr. Finley, I proceeded, with only a common pocket scalpel, a curved needle, the point of which was broken off, and a piece of small twine, to the performance of the operation. An incision of about four inches in length was made

through the integuments, immediately above, and nearly parallel with, Poupart's ligament; the tendinous aponeurosis of the oblique muscle was then divided to the same extent, in the course of its fibres, and my hand passed into the cavity of the abdomen, through an opening cautiously made in the fascia transversalis, and the corresponding portion of the peritoneum. Carrying it upwards and backwards, I immediately reached the common iliac artery with the tip of my finger, with the nail of which, I scratched through the peritoneum and fascia on each side of it. This done, the blunt needle, armed with the twine, was cautiously conducted beneath the vessel, guided by the finger, and the ligature tied. One end was cut off close to the knot, and the other brought out at the external wound. The hemorrhage was instantly arrested, and the artery pulsated violently above the ligature. The external wound was afterwards closed by means of three or four sutures.

The animal soon recovered sufficiently to rise with but little assistance, and afterwards walked the distance of a quarter of a mile, to the nearest stable. On the second day he was bled freely from the jugular vein, and cathartic medicine was administered. The case promised at first to do well, but on the fifth day, unpleasant symptoms shewed themselves, and on the sixth, death took place.

A careful examination of the parts was made, in the presence of the late Professor Ramsay. The artery was found perfectly obliterated, and the ligature detached, and it was ascertained that death had been induced by violent peritonitis, which seemed to have been rather a consequence of the extensive laceration inflicted by the original wound, than of the operation.

Professor Gibson first applied a ligature to the common iliac artery in the human subject, in 1812, during the riots which took place in Baltimore. It has since been performed with success by Professor Mott, of New York, and unsuccessfully by Guthrie and Dupuytren.

ARTICLE VI.

Treatment of Fracture of the Clavicle. By RICHARD WILMOT HALL, M.D. Professor of Obstetrics in the University of Maryland.

THIS bone is often fractured in the adult by blows—by the recoil of a fowling piece—by falling from a horse or vehicle on the shoulder, and sometimes by extending the arm to a resisting object, when the body is suddenly thrown forwards. During the period of infancy or childhood, a solution is often caused by falling from an elevated bed, or down a succession of steps. This accident is not generally attended with danger. Sometimes the vessels and soft parts in the neighbourhood of the fracture do suffer laceration from the acute points of the bones which invade them. A deformity often remains, when an oblique fracture is neglected or maltreated, by the inclination of the shoulder inwards and downwards, the support afforded by the clavicle in its natural length having been withdrawn. Another unpleasant result is too often added, which in a female is especially to be regretted, as impairing the perfection and symmetry of the chest, viz: the appearance of a prominent bony tumour at the point where the clavicle has been fractured. These deformities are often found to exist after oblique fracture, when treated according to the methods recommended by the English and French schools of surgery, by means of many folds of common roller or bandage:* Hence these deformities are almost always the result of this accident in infancy or childhood. In the case of an adult, who can reason himself into submission to professional dictation, we may hope to find an endurance of the stricture and local irritation, necessarily inflicted on him for a series of days and nights, by the folds of this boa constrictor of surgery; by which, in hot climates, or in the warm months of summer, the sufferer must be macerated, if not extensively excoriated.

In the cases of children, can the endless folds of this bandage,"*several yards*" in extent, be tolerated? Does not the experience of every practitioner teach, that they *will* not be borne by the little sufferers? They can neither rest, sleep, or take nourishment while under such treatment; and the nurse is induced even for her own comfort and repose, secretly to undo all

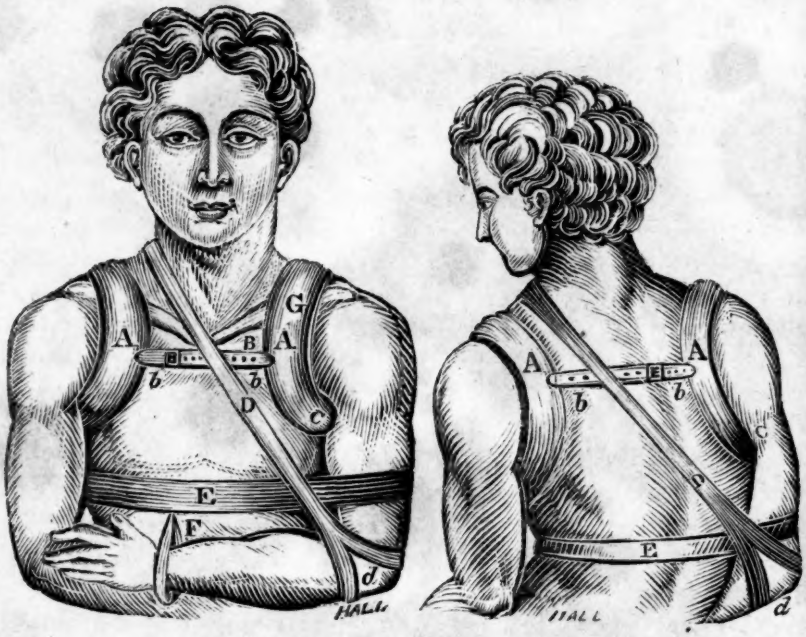
* Vide surgical works.

that the surgeon has previously done with care and attention. Again: These long rollers of the old plan require a new adjustment at least every morning—even where they have not been interfered with by the patient or nurse; and in the end, after great attention has been lavished on these cases, the deformities before alluded to are found to exist, to the disgrace and injury of the surgeon.

It is almost superfluous here to remark, that the shoulder, in fracture of the clavicle, falls toward the lower portion of the sternum, and when the fracture is oblique, that the broken ends of the bone pass each other, or that one fragment "*rides*" upon the other. The anatomical structure of the parts concerned, teaches us, that in order to correct these deviations, the arm must be supported, so that it cannot gravitate downwards; the shoulder must be drawn back, and its tendency to the anterior declination steadily counteracted. These are the indications. Ample experience has convinced us, that the *rollers of many yards long* will not meet the intentions of the surgeon here. They stretch or yield—they become displaced by the motions of the body—and they often cause great local, and covert irritation.

About twenty years since, I discarded the long rollers recommended by European surgeons in such cases, and adopted a more convenient, simple, and efficient plan, to fulfil the indications in fractured clavicle. This plan will be readily understood by the annexed plates with explanations. I have invited many practitioners of this city to visit my patients, of all ages, on whom this apparatus had been applied, and have exhibited to them the individuals after the termination of the treatment—they have expressed their entire approbation of its success. I have used it also in the Infirmary attached to the University of Maryland, and have invited the attention of my colleagues, the successive professors of Surgery, to its details and results. Its simplicity is such, that a nurse of ordinary intelligence can manage it under the occasional notice of the surgeon. It should be applied on the parts without the intervention of any portion of the dress, which may then be worn over it. The plate shows the left clavicle as treated for fracture—the arm on that side must of necessity be confined near the body. The right arm is left free for action.

Baltimore, April 14, 1835.



EXPLANATION OF THE PLATES.

ANTERIOR VIEW.

AA. The two humeral rings formed of soft leather, with cotton or other stuffing.

B. A strap and buckle attached to each of the rings, at the points bb. to approximate the rings.

C. An enlargement of the ring that passes over the fracture of the clavicle, to serve as a wedge or fulcrum in the left axilla.

D. A strap or kerchief resting on the right shoulder, to elevate and support the elbow. Split at *d.* to receive the olecranon, and to retain it.

E. A strap or roller to fix the left arm, and by bringing the elbow to the body, around which it passes, to make the arm a lever, acting on the fulcrum c. and thus keeping the head of the humerus from pressing inwards towards the sternum, and displacing the fractured portions of clavicle.

F. A strap or bandage to sustain the left hand. The right hand and arm are left free.

G. The point at which the fracture has taken place may be covered with adhesive plasters, placed under the ring.

POSTERIOR VIEW.

AA. The humeral rings.

B. A strap and buckle to approximate the posterior and median periphery of each ring, and to cause the scapulæ to approach the spine, and to prevent the shoulders from gravitating forwards. *bb.* the points of union with the ring.

C. The enlargement of the axillary portion of the humeral ring.

D. The strap to sustain the elbow, split below to receive the olecranon at *d.*

E. The strap to secure the arm, and by drawing it to the body, and causing it to act as a lever.

ARTICLE VII.

Pathology and Treatment of Irritation—Local, Sympathetic and Constitutional. By N. R. SMITH, M.D. Professor of Surgery in the University of Maryland.

1. THE human body is composed of an assemblage of organs, each possessing its peculiar structure, and performing its appropriate office. By this multiplication of organs a division of vital labour is effected, each constituent part executing its function for the benefit of the whole economy, and being in its turn dependant upon its associates. The functions of all these organs have a common object—the life of the compound body to which they belong. To preserve harmony of action they must perpetually keep up a vital correspondence, and this is effected through the medium of the nerves, one of the uses of which is to convey vital influences from organ to organ. This office of the nervous system is termed sympathy, or correlation, and we shall find that it performs an important role in disease, as well as in health.

2. Each of the constituent organs is in itself compound, being constituted of certain elementary tissues, or peculiar organized textures. Each one of these has its proper physical and vital properties, or qualities, by virtue of which it performs its allotted part in the structure of an organ, and in disease exhibits phenomena which are peculiar to itself. The elementary principle of life, is inherent in many of these tissues. It is that quality, by virtue of which, the part feels the impression of an agent called a stimulus, and responds to it by either sensation or motion. Almost every substance in nature may become a stimulus, and some substances, either external or internal, such as air, electricity, aliments, &c., are perpetually acting as such upon some of the tissues, and exciting this vital property. The sensations and motions thus resulting, are the elements of all the offices of life. The vital property which thus responds to stimuli, was by Haller termed "irritability;" by Professor Jackson and others, it is with much propriety styled "vital force;" by Bichat it is resolved into the two properties, sensibility and contractility. I prefer (and in so doing am not singular,) to call it *excitability*, a term sufficiently general to express all forms of it, one by no means equivocal in its meaning, and embracing no hypothesis.

3. So long as excitability remains healthy, or normal, and is

operated upon by a stimulus of suitable degree and quality, healthy action, or excitement, alone results. If the excitability of a part, or of the system, has, by the operation of predisposing causes, become excessive, we term this state, *irritability*. When a stimulus acts with excessive force upon a part, we call this agent an *irritant*. If an ordinary stimulus act upon a part which is irritable; or if an irritant act upon a part which is healthy; and more especially if an irritant act upon a part which is irritable, the modified or morbid excitement which results, is *irritation*.

4. Irritation, then, in other words, is the morbid excitation of the vital qualities of a part, or of the system. It is the element of all diseased actions, or morbid phenomena, precisely as excitement is the element of all the healthy functions. It may be produced in any tissue which possesses excitability; that definition of irritation, therefore, which makes an afflux of fluids to the part a necessary condition, is erroneous, since there is excitability in tissues not immediately concerned in the circulation, as for instance in the nerves and muscles. Irritation, it is true, is almost always quickly followed by a determination of fluids to the part, and hence the justness of the aphorism, "ubi irritatio, ibi fluxus;" but irritation is sometimes very manifest in a part where no evidence of a disturbed circulation is seen.

5. Of irritation it is necessary to recognize three varieties: 1st. *Local Irritation;* 2d. *Sympathetic Irritation;* 3d. *Constitutional Irritation.*

6. Local Irritation. When the action of an irritant is slight and circumscribed, its effect, for a time at least, is confined to the part on which it immediately acts. The impression is not sufficiently intense to disturb, through the nerves, those organs which intimately sympathize with the part, and much less to agitate the whole system. The brain, it is true, takes cognizance of the injury inflicted, and pain is felt, but no morbid exercise of the office of the brain takes place, for the perception of pain is then a normal function of that organ.

7. Local irritation must obviously be most readily excited in those parts which possess the highest degree of excitability. This property is generally proportioned to the number of blood-vessels and nerves, which enter into the organization of a part—but this is not invariable, as we shall hereafter have occasion to show. An augmentation of vascular action, with afflux of blood to the part, (inflammation, hyperemia) although it usually quickly fol-

lows, is not a necessary concomitant of local irritation. If we pierce a part with a needle, there is pain, giving evidence of irritation, at the instant of the contact of the instrument; but no afflux of fluids can have yet happened, and when it does occur, it results as the effect of irritation. But sometimes local irritation remains fixed in the nerves, or other sensitive tissues, and does not pass over to the blood-vessels, and then irritation continues to be the only pathological condition of the part, there being much pain and tenderness, without the slightest evidence of inflammation. There occur cases of neuralgia which illustrate this principle. I have recently attended a medical friend labouring under an affection of the knee joints, attended with such extreme morbid tenderness of the articular apparatus, as to cause great suffering whenever he attempted to walk without a crutch. There was, however, not the slightest evidence of inflammatory action—not the least puffiness of the joint, so uniform a concomitant of inflammation of the synovial membrane. We may also instance the irritable state of the female breast described by Cooper. Analogous cases are of frequent occurrence.

8. *Causes of Local Irritation.* Local irritation is much more readily excited in some individuals than in others, owing to the existence of a greater degree of sensitiveness. A surgical operation often creates far more pain in one individual than in another, even where moral firmness is the same in both, and the condition of the parts similar. I once removed an adipose sarcoma from the back of a female, in the Baltimore Infirmary, who was so insensible to the knife as to be scarcely conscious when the operation was commenced, or when it terminated.

9. The readiness with which local irritation is produced, is often owing to the previous operation of predisposing causes, inducing general or local irritability. Any agent which either depresses the natural energies of the system below the healthy standard, or elevates them above it, may become a cause of irritability; for any departure from the state of perfect health, renders the system more obedient to the exciting causes of disease. The effect is the more certain to result, because such agents operate unequally, and the balance of action is necessarily disturbed.

10. Excitability is observed to accumulate in an organ from which its accustomed stimulus is for a time withheld; and it is in a corresponding degree exhausted by a frequent repetition of the excitant. Irritation, therefore, is more easily excited in a part

which has been for a time in a state of repose, than in one which has been recently fatigued. The sudden admission of light to an eye which has been for a time in total darkness, instantly creates irritation of that organ.

11. The healthy excitability of an organ may be greatly diminished or exhausted by the frequent repetition of irritation. The first introduction of the catheter is painful; the second, if sufficient time has elapsed, is less so, and ultimately the passage of the instrument is hardly felt. To this principle, however, there are exceptions; sometimes permanent irritability is produced by the repetition of the irritant.

12. Irritability of certain parts is frequently dependant on an irritation already existing in other organs. Thus, chronic gastro-intestinal irritation causes other parts in which no disease is yet manifest, to be more susceptible to morbific agents.

13. The exciting causes of local irritation, are any agents which are capable of impressing the vital qualities of a part, acting inordinately, or upon an irritable part. These agents may be mechanical, chemical, or vital. The rude impression of hard or sharp bodies, or even the presence of a particle of foreign matter, as in the eye, is often a cause of local irritation. Heat, cold, and innumerable other chemical agents, any agent, in short, which threatens or produces lesion of texture, is an irritant. Mental emotions sometimes produce local irritation.

14. The amount of local irritation produced by any cause, is in the compound ratio of the force of the irritant, and excitability of the part.

15. *Symptoms and Diagnosis of Local Irritation.*—The excitability of an organ is ordinarily exercised in the proper function of that part, but when operated upon by an irritant, it is diverted from its usual office, and occupied by an excitement inconsistent with it. Muscles, when irritated, act spasmodically, and no longer in obedience to the will; or they are paralized. The eye, when struck, perceives bright flashes of false light, but is incapable, for a time, of its usual office. Sometimes the function of an organ is for the time suspended altogether by irritation. Sometimes the irritant is associated with the accustomed stimulus, and the office of the organ is preternaturally increased, as in the secretion of the lachrynal gland by a mote in the eye. Sometimes the action of the part is merely modified and vitiated. When secretion is provoked by an irritant the product is often vitiated.

16. Pain is so prominent and uniform a symptom of local irritation, that the idea of the one is necessarily associated with that of the other. Wherever animal sensibility exists, pain is the instant effect of irritation, and it is proportioned to the degree of feeling in the part. It is consequently intense in the eye—the auditory passage—on the lips and the fingers, and, indeed, in the skin universally. But pain is not a necessary symptom of local irritation. Some parts possess only an organic sensibility, and although, in themselves, they feel external impressions, and have their excitability roused, they impart no sensation to the brain. The stomach is sometimes strongly irritated without the production of the slightest pain.

17. Mr. Travers regards inflammation as one of the demonstrations of local irritation, but I see not how we can otherwise regard inflammation, than as a mode of irritation itself—irritation of the blood-vessels,* rather than as a mere symptom of irritation. The moment that irritation becomes located in the blood-vessels, the symptoms of inflammation become those of irritation. The general symptoms of irritation in the tissues of a part, become supplanted by those of inflammation when this is established. I shall therefore consider inflammation as one of the terminations of irritation.

18. *Terminations of Local Irritation.*—Local irritation may terminate in resolution—in local inflammation—in sympathetic irritation, or in constitutional irritation. The period of pure local irritation is generally transient, it either quickly disappearing, or immediately passing into inflammation. When, however, inflammation has supervened, irritation still exists in the sensitive tissues which first felt the irritant, inflammation, or irritation of the blood-vessels, only being added to the previous pathological state, and presenting its own more obvious phenomena. Various degrees of irritation in the tissues of the part concerned, may remain associated with inflammation, according to the natural excitability, or irritability of such part. When local irritation has given rise to sympathetic irritation, the former sometimes totally disappears, the latter only persisting.

19. When local irritation is intense, the perturbating influence which it exercises through the nerves on the whole system, soon induces constitutional irritation: I do not, however, at present

* Inflammation is irritation, but the converse is not true—irritation is not necessarily inflammation. The one term is generic, the other specific.

allude to those cases of severe injury in which local and constitutional irritation instantly and simultaneously result.

20. Sometimes, however, local irritation of even a severe character, continues for an indefinite time without causing any of these results. This is illustrated in the affection termed the irritable breast of females. Here we often have not the slightest evidence of inflammation—nay, the means employed in such cases to subdue a supposed inflammation, are usually found to be productive of decided injury.

21. *Treatment of Local Irritation.*—In relation to the treatment of local irritation, the first of object of attention is the cause. Perhaps this may be still operating; and if so, is to be promptly removed. A mote in the eye—a foreign body in the auditory meatus—a splinter in the flesh, may be causing an irritation which nothing will sooth till they are removed. The irritated organ should then be allowed to repose, and should be protected from the atmosphere. To discuss irritation before it shall have resulted in any other form of disease, such applications are to be made as are known to exercise a tranquilizing influence. Warmth and moisture, by relaxing the irritated tissues, are found to produce this salutary effect. They are applied in the form of fomentation or poultice. These may be medicated with anodynes, such as opium, capsules of the poppy, hyosciamus, &c. &c. Decoctions of the bitter herbs are used with the same intent. When the disease manifests a disposition to linger in a part which is sensitive and important, an effort should be made to transfer it to some other part by counter-irritants, whereby the surgeon favours the termination of primary local irritation in sympathetic irritation of less formidable character. The agents employed may be sinapisms, blisters, the moxa, warmth, &c. &c.

22. When the symptoms of local irritation are severe—the pain being great, and the disease of course threatening to pass into severe inflammation, or constitutional irritation, it is proper to meet its effects on the constitution by the internal employment of opiates. Even when inflammation has in a degree supervened, opiates are proper while irritation still predominates. Opiates internally given, even allay the symptoms of local irritation, though the system may not have yet become disturbed. They are thus used to allay the pain resulting from a surgical operation, and from accidental injuries.

23. SYMPATHETIC IRRITATION.—An irritant sometimes operates directly upon a particular part, but its effect, or a part of it, is by the nerves transferred to another organ, perhaps remote from the part first impressed. Stone in the bladder sometimes creates but little distress in that organ, but always gives rise to severe sympathetic irritation in the glans penis. In hip disease, (coxalgia,) although the affection is primarily located in the hip, the pain is at first wholly felt in the knee, and the attention of the patient, or nurse, is usually misdirected. The sympathetic and secondary affection often becomes more serious than the primary, and sometimes is the first which terminates in serious inflammation. A case has been reported by me, in the North American Archives, in which, from the irritation of a large calculus in the bladder, mortification was caused in the glans penis, though but little lesion was found to have been inflicted upon the bladder itself. Sometimes the sympathetic irritation, once established by revulsive influence, transfers to its own seat the whole of the primary irritation, and then becomes the only remaining disease.

24. Sympathetic irritation is characterized by the same symptoms which mark the local form. It is, however, less constant, and more disposed to change its place. It is also liable to the same terminations, though these do not uniformly, or so promptly, result. Sympathetic irritation is much more apt to retain for a time its primary character, and often, therefore, remains a simple irritation after the primary local irritation has passed into inflammation. Often, indeed, the sympathetic irritation does not arise until this change has taken place in the primary disease. The irritation, which attends local inflammation, is often observed to produce sympathetic pains and tenderness in different parts of the system, and to disturb the functions of particular organs.

25. Not unfrequently, however, sympathetic irritation results in inflammation, and becomes a fixed disease. It may also, by adding to the impression which the nervous system feels, assist the production of constitutional irritation.

26. The treatment adapted to local irritation is also applicable to the sympathetic. It is to be borne in mind, however, that as, for a time at least, the latter disease is wholly dependant on the former, we should first address our remedies to this, and should they promptly succeed, the secondary affection spontaneously disappears. But when the local irritation persists, it is proper that remedies should also be directed to the seat of sympathetic pain: for, by such application, we counteract the effect of local irritation

in producing it. In coxalgia, the sympathetic pain in the knee is often soothed by applications made to the knee itself.

27. Revulsives are particularly efficacious in the relief of sympathetic irritation. I have already remarked that this form of disease is subject to metastases; hence, we may often successfully solicit it from one part to another by suitable revellants. When we observe sympathetic irritation to locate itself in some important organ or sensitive tissue, blisters, sinapisms, the moxa, cups and leeches, one or all, are to be put in requisition, to give the disease a less mischievous locality, and a more manageable form. When the primary local irritation has declined, and the sympathetic form has become intense, and located itself in some important organ, it may be desirable to recall the disease to the part first affected, and this is to be accomplished by the application of stimulating revellants.

28. Constitutional Irritation.—It has been already stated that every part of the system is associated, and to a certain extent, vitally indentified with every other part, through the medium of the nerves. In the usual exercise of its office, each organ is perpetually influencing other organs, and soliciting from them the necessary co-operation. The necessities of each organ are felt through the nerves by other organs, and these then act to supply those wants. The "stimulus of necessity," then, a phrase used by Hunter, is not an unmeaning expression. This susceptibility of the whole system to local impressions may be termed constitutional excitability.

29. But when a part feels the powerful impression of an irritant which acts injuriously upon its excitability, its suffering condition is instantly announced to the whole of the system, and the various organs are, more or less, involved in the disturbance which radiates from the stricken part. The harmony of healthy action is broken—the organs no longer respond to each other in the usual manner, and the important functions of the economy are irregularly and morbidly exercised, or are, for a time, wholly suspended. This state of general disturbance is termed *constitutional irritation.* We may, in more brief terms, define constitutional irritation to be the morbid action of constitutional excitability.

30. When the constitution is morbidly sensitive to local impressions, we may term this state *constitutional irritability.*

31. The influence which the condition of one organ exercises

over that of the system, is generally proportioned to the importance of its function. The degree of constitutional irritation, is generally in the compound ratio of the importance of the organ, and the intensity of the local irritation excited in it.

32. Constitutional irritation may be divided into the *primary*, and the *consecutive*. Primary constitutional irritation is that, which is not preceded by any other state of disease, (except by local irritation, which, however, is generally simultaneously induced,) and is the immediate effect of the morbific agent. Consecutive constitutional irritation, is that which follows local inflammation, and is from the first associated with symptomatic fever.

PRIMARY CONSTITUTIONAL IRRITATION.

33. *Causes of Primary Constitutional Irritation.*—The predisposing causes of the primary constitutional irritation, are any which induce constitutional irritability. The systems of some individuals are, from birth, far more susceptible to perturbating impressions than those of others. Some persons are at once prostrated by the infliction of a slight local injury, while the nervous systems of others appear to suffer no shock from the same cause. I have known healthy and vigorous men, who uniformly fainted on the infliction of the slightest injury. I was once consulted by a patient who laboured under a formidable tumour located on the scapula. Whenever an operation was named to him, as a dernier resort, he was sure to become agitated, and to faint. Mr. Travers has related several instances in which surgical operations of moderate severity, have so shocked the systems of those who suffered them, as to cause instant death. My father, the late Professor of Surgery in Yale College, witnessed such a result in his own practice, from the extirpation of a small tumour upon the forehead. In all such cases there exists extraordinary congenital susceptibility.

34. Females are more susceptible of constitutional irritation than males, and children more so than either. Convulsions, which are one of the strongest expressions of constitutional irritation, are often produced in children by the action of a local irritant, as for instance, worms, or the presence of indigestible matters in the stomach. The susceptibility diminishes as age advances, till the same causes become comparatively innocuous.

35. The system, like a particular organ, may have its excitability in a degree exhausted, or, in other words, become accus-

tomed to morbific impressions, so that its susceptibility shall be diminished. The constitutional irritation resulting from an amputation, is usually not great, when the system has become accustomed to irritation from chronic disease, but often fatal when the operation is performed on a patient in rude health.

36. Any agent, which causes a considerable departure from the healthy standard of action, either by inducing exhaustion, or causing repletion and undue excitement, may produce a degree of constitutional irritability, or disposition to respond to the exciting causes of disease. In the one state, to use the language of Hunter, there is an increased disposition to act, without the power to sustain action. This would appear to be the predisposition most to be dreaded, since here the disease may be said to "make the meat it feeds on," or increase the state on which it depends. In the other case, there is an increased disposition to act, with power to support it. Here disease may sometimes remedy itself by exhausting the excessive power to sustain action.

37. Irregularities of diet and exercise, vicissitudes of temperature, epidemic influences, mental emotions—all the agents, in short, whether physical or moral, which strongly impress the living system, may, when inordinate, predispose to constitutional irritation. This they probably, in most instances, effect, by inducing occult local disease—a chronic irritation of some tissue or organ. As the mucous membrane of the stomach and intestines is more than other parts exposed to these lædants; and as the state of these organs powerfully influences the rest of the economy by correlation, we often find that obscure chronic gastro-enteritis is the state, which renders the system morbidly susceptible to exciting causes.

38. The exciting causes of primary constitutional irritation are, for the most part, identical with those which produce local irritation, except that acting with greater violence, they not only produce the latter, but, through the medium of the nerves, shock and disturb every other organ which holds vital correspondence with it. Surgical operations are necessary sources of constitutional irritation, and especially when performed upon inflamed parts, the constitution being already morbidly irritable. All severe lesions inflicted by violence on the body, whether wounds, poisons, bruises, fractures, or dislocations, give rise to primary constitutional irritation in greater or less degree. Mental emotions are capable of exciting this general disturbance. Excessive terror has been known to produce convulsions and death. The

same has resulted from profound grief, and from bursts of uncontrolled joy. Great loss of blood may be both a predisposing and an exciting cause.

39. If we admit, with Hunter, that irritability is "an increased disposition to act without the power to act with," the influence of blood-letting as the principal cause in the production of one form of constitutional irritation, is easy of explanation. It can furnish, however, but one of the conditions—the want of power to act. The increased disposition to act, must be the result of some other cause co-operating or pre-existing. When persons in ordinary health lose, by casualty, a great quantity of blood—even enough to produce extreme exhaustion, and no local irritation exists, or is created at the moment to destroy the balance of action, no state of disease, except, perhaps, transient syncope, necessarily results;—the harmony and regularity of action is preserved, only it is rendered extremely feeble. But often this loss of blood is accompanied with the infliction of severe local injury; and if so, the power of that local injury to produce constitutional irritation, is greatly increased by the hemorrhage. Severe surgical operations, in which there occurs great loss of blood, not unfrequently occasion this form of general disturbance. Severe wounds, complicated with hemorrhage, are often followed by similar consequences. Parturient females, who suffer copious uterine hemorrhage, have necessarily a greater or less degree of uterine irritation, and often, indeed, an unusual degree of it is the cause of the bleeding. Constitutional irritation, therefore, is often a form of child-bed sickness.

40. Symptoms and Diagnosis of Primary Constitutional Irritation.—The character exhibited by constitutional irritation will depend, in a degree, on the nature of the causes which develope it. The agitation, for instance, which arises from severe local injury, may be expected to differ, in a degree, from that which is induced by sudden and great loss of blood.

41. *Constitutional Irritation from local injuries.*—When a person is felled to the ground by a blow, his fall is not so much occasioned by the physical impulse of the body which strikes, as by the paralyzing influence which is exercised upon the nervous system. It is not so much the momentum of the blow, struck by the pugilist, which causes the fall of his adversary, as it is the hurt which some sensitive part feels, and the agitation which, in consequence, the nervous system suffers. By such an injury,

the individual is, for a moment, astounded, and perhaps loses for an instant his consciousness. The sensitive principles of life are, for a moment, called off by this new impulse from the ordinary exercise of their offices. After a brief interval, however, if the cause be thus slight, the surprise passes away, and no considerable local injury remaining to keep up the effect, the regular train of vital actions is resumed.

42. In another instance the injury may be more severe, either because the shock is more generally communicated to the body, or because it produces organic lesion in some sensitive part. An individual has perhaps fallen from a height, and, although no solution of continuity may have been produced, the whole body has received a severe concussion. The shock is felt especially by those delicately organized and sensitive structures, the brain and nerves; the system is, as it were, electrified by a new and overwhelming impression, and the organs are made to abandon for a time their ordinary offices. The patient lies motionless and unconscious;—he is, indeed, in a state of suspended animation, there being for a time neither pulse at the wrist, nor respiration; his countenance is pallid, and his extremities quickly become cold. After a time, an irregular and fluttering pulse is felt at the wrist—he heaves a deep sigh, and moves his limbs or body. These evidences of returning life become every moment stronger—warmth begins to be restored to the surface—consciousness returns, and he is roused as if from sleep, with often not the slightest recollection of the mode in which the injury was inflicted. Often, at the commencement of re-action, vomiting occurs, especially if food has been taken but a short time before. There exists an instinct in the stomach, which prompts that organ to unload itself of its contents, whenever its office is suddenly interrupted. The effort of vomiting, by the mechanical impulse which it gives to the heart, great vessels and lungs, aids to restore the circulation, and to render re-action complete. Some degree of febrile excitement now supervenes.

43. When a wound of no great extent is the source of constitutional irritation, as there is no general shock, the prostration does not so instantly occur. After a few moments syncope takes place, marked by the phenomena above described; and lastly, re-action either concludes the pathological state, or passing beyond salutary bounds, establishes febrile excitement.

44. But when the injury is extensive—when, for instance, a

wound by a musket ball is inflicted upon important parts, or a limb is carried away by a cannon shot, a degree of constitutional irritation is the instant consequence. The patient almost always falls, though often, from the benumbing influence of the blow, unconscious of the cause which prostrates him. His surface becomes cold, his pulse small and irregular, his breathing anxious, and he is restless.

45. The immediate effects of such injuries are, however, exceedingly various; sometimes even a member being carried away, and the system remaining scarcely conscious of the mischief. This is dependant in part on difference of constitution—partly, also, on the mode in which the injury is inflicted, but more especially on the presence or absence of excitement at the moment. In the rush of battle, the moral excitement created, is the most vivid of which our nature is susceptible, and it so strongly pre-occupies the sensibilities of the nervous system, as to render it wholly insensible to agents which would be keenly felt at any other moment.

46. There often results from profound injuries, such as a compound dislocation or fracture of an important joint, or the abstraction of a limb by cannon shot, a state of complete prostration of the vital powers, which French surgeons have denominated "stupeur." In this form of constitutional irritation, the shock has overwhelmed the powers of the nervous system; there is complete insensibility, and death-like coldness—the whole body is completely insensible to ordinary impressions, and the patient, though conscious, is altogether indifferent in regard to his fate. Amputation may be proposed, and he manifests no interest—replying, perhaps, as did Quesnay's patient, "ce n'était pas son affaire." "It was no affair of his." The proposition for it is unheeded, and the execution of it unfelt. The pulse of the patient in this condition is frequent and feeble—his respiration faint—the eyes fixed with an unmeaning gaze—the mouth agape—the tongue dry. The wounded parts are flabby and cold, and there is a passive exudation of dark blood, but no active hemorrhage. The only suffering of which the patient complains, is distressing oppression at the præcordium, and this increases to a most agonizing degree, as the disease approaches its usual and fatal close. The patient complains as if his breast was crushed in by an insupportable weight, smothering his respiration; he disencumbers himself of bed-clothing with an eager effort, and

tears his very shirt from his bosom. He tosses himself from side to side with desperate efforts, and the slightest restraint from the hands of his attendants, appears to double the præcordial distress. Should recovery take place, which is rare, re-action slowly occurs, and these traits of irritation are gradually merged in febrile excitement.

47. Severe and extensive burns are common causes of constitutional irritation, and especially when widely affecting the skin—not destroying, but strongly irritating, that sensitive tissue. For reasons already named, and because of the comparative excitability of the skin, such is very frequently the result of cutaneous burns and scalds in children. It is well known that in such cases, the infliction of the injury is promptly followed by evidences of prostration; there often occur rigors, the pulse is frequent and small; the face is pallid; the patient often vomits; convulsions not unfrequently arise; sometimes no re-action can be induced. Visceral congestions undoubtedly supervene on the irregular and unequal action, and modify the pathological character of the case; but I am further persuaded that the first condition is one of irritation, from the promptly beneficial effects of anodynes when administered at an early period.

48. A blister created by any vesicatory on an irritable skin, and especially in one not accustomed to their impression, is a common cause of transient constitutional irritation. Perhaps immediately after the first dressing of the blister, a rigor occurs, accompanied by syncope, and distressing sense of prostration and præcordial oppression, which symptoms are usually soon dispelled by the spontaneous occurrence of re-action.

49. Surgical operations are a frequent source of constitutional irritation, and the probability of its production, in a greater or less degree, is always to be taken into account in deciding upon a resort to the knife. The form of irritation thus arising, is similar to that which is caused by accidental wounds, but is often more severe, because of the protraction of the local hurt, and the influence of the imagination, which for obvious reasons is here more exercised. Surgical operations are also often necessarily performed upon parts which are irritable or inflamed, and when the constitution is already in a state of morbid susceptibility. These are causes which cannot fail to increase the effect of the injury on the system. On the other hand they are often deferred until excitement has passed away, and until the system has become so habituated to the influence of a local irritant, that the

knife produces less constitutional disturbance than it would in the ordinary healthy condition of the system.

50. Painful and protracted surgical operations on sensitive individuals, and especially on children, are sometimes productive of convulsions, which may be regarded as one of the strongest demonstrations of constitutional irritation. Convulsions are sometimes induced in the parturient female, at the moment that the suffering caused by a difficult labour is aggravated, perhaps necessarily, by the employment of instruments to accomplish the delivery. The operation for hare-lip on very young and sensitive infants has sometimes been followed by convulsions. A rigor not unfrequently follows a severe operation, and sometimes, indeed, one of simple character, some hours after its performance.

51. I have already alluded to excessive loss of blood as a source of constitutional irritation. The first effect of loss of blood in considerable quantity, is syncope. This might with propriety be regarded as a form of constitutional irritation, since it is manifest, that this state results from an impression made on the nervous system by the sudden diminution in the volume of the circulating fluid. If the loss of blood be great, and local irritation be at the same time produced, the state of syncope will often be protracted. This state is at length followed by re-action, and that generally in the direct ratio of the amount of blood lost. In the re-action following loss of blood, the action of the heart is unusually violent, amounting often to palpitation. The impulse of these quick and convulsive contractions appears, however, to be spent upon the large arterial trunks in its vicinity, strong pulsations of which are seen in the neck, and are felt in a distressing degree in the head and abdomen. When the patient sits erect, so strong is this beat, that an obvious vibratory motion of the head is observed to take place at each impulse of the heart. Although the heart appears thus to labour in its office, the circulation is by no means effectually carried on. The surface of the body is extremely pallid and icterode, and the same is the condition of the mucous surfaces, giving evidence of an extremely feeble capillary circulation. At times, however, the face is flushed. The languid functions of the various organs give evidence of a deficiency in the supply of the nutritive fluid. The bowels are ordinarily torpid.

52. The preternatural action of the heart is by no means constant; remarkable vicissitudes are strikingly characteristic of this state. The heart appears at times to become exhausted and

discouraged with its efforts, and then there results a collapse, so sudden as to produce alarming syncope. Perhaps in half an hour after the pulse at the wrist has been felt bounding with an apparent violence which seemed to demand the instant use of the lancet, a transition so sudden will have occurred, that the patient appears almost moribund; being nearly pulseless, cold, and exhausted. At those moments when the heart is excited, the pulse at the wrist beats with a violent and convulsive throb, but it is strikingly different from the pulse of inflammation. The fluid is felt to undulate quickly through the artery, and, in the interval, to leave it empty; a thrilling sensation is communicated to the finger, and a vibratory impulse; the artery is easily compressed. This character of the pulse is probably owing, in part, to the emptiness of the vessels, there being no continuous column of blood on which the heart may act, and transmit its impulse to the capillaries. If blood be taken in this state of the disease, it presents an impoverished, thin, and watery appearance, and the coagulum is small and loose. These traits will enable the practitioner to distinguish, as it is exceedingly important he should do, this state of disease from that of inflammation.

53. A formidable variety of constitutional irritation results from the impression of certain poisons. They indeed are the most powerful and prompt irritants in nature. Their impression is primarily made on all the vital properties of the system, and especially those of the nerves. The poison may be absorbed, but still it continues to exercise its irritating influence on the elementary principles of life in all the tissues. From these lædants then the first effects which arise are those of irritation. When a person is bitten by a venomous serpent, the first effect is extreme local pain: this is followed by a rigor—sense of universal distress—prostration of the powers of life, evidenced by a pallid countenance, feeble and frequent pulse, and loss of muscular power. The poison will thus appear to have morbidly and violently impressed the excitability of the whole system, and to have disturbed the functions of the various organs. So long as this state of things exists, it is one of pure constitutional irritation, and this may be so profound that it shall persist without re-action, till it shall have brought the case to a fatal close. But generally, re-action succeeds, inflammation takes place in the wounded part, and the traits of the fever of inflammation supersede, or become superadded to, those of irritation.

(To be continued.)

ARTICLE IV.

Climate of St. Augustine. By ROBLEY DUNGLISON, M.D., Professor of Materia Medica, Therapeutics, Hygiène, and Medical Jurisprudence, in the University of Maryland.

DEAR SIR:

Since my work on the "Elements of Hygiène" was printed, I have been favoured by Dr. Porcher, of St. Augustine, with a diary of the weather for the months of November and December last, which afford additional opportunities for comparing the climate of Florida with that of the more northern parts of the Union. The latter month was, as every one must recollect, very inclement, and of a character to be extremely trying to the invalid, especially to one labouring under, or threatened with, pulmonary mischief. The whole winter has, indeed, been one of unusual severity, and it will be interesting to obtain an accurate meteorological register from this now fashionable winter retreat, in order that we may be able to estimate the thermometric advantages, which it possesses. Should Dr. Porcher favour me hereafter with his diary for the remaining winter, and the spring months, it will give me much pleasure to communicate it to you, for the information of the profession, and the public. Much discrepancy exists as to the best winter retreat for the phthisical invalid, but after a full and impartial examination into the advantages and disadvantages of various situations, and after a personal experience of some of them, I am not prepared to say, that any offer stronger inducements than Florida; and in this territory St. Augustine is resorted to, chiefly because of the greater accommodations which it affords,—accommodations which are annually augmenting, and must continue to augment, now that the number, flocking thither in search of health, has become so considerable. From the "Florida Herald," it would appear that nearly two hundred strangers were in the different houses of accommodation of St. Augustine, on the first of January last; and of these nearly sixty were from the State of New York.

To exhibit a comparison between the climate of Florida, and that of Pennsylvania, I have placed, opposite to the diary of Dr. Porcher, that kept at Germantown for the corresponding months, as published in the "Journal of the Franklin Institute."

Days.	Max.	Min.	Wind.	Weather.	REMARKS.
1	68°	64	NE.	rain.	stormy.
2	68	63	"	"	
3	68	64	"	"	
4	78	58	"	"	
5	68	53	"	fair.	
6	58	42	"	"	
7	60	40	"	"	
8	67	41	NW.	"	
9	65	46	"	"	
10	69	51	SE.	"	
11	70	52	"	"	
12	70	56	NE.	"	
13	72	58	SE.	"	
14	76	61	S.	"	
15	77	65	"	"	
16	77	67	SW.	cloudy.	
17	80	64	"	"	
18	72	46	NW.	fair.	
19	62	42	"	"	
20	56	41	NE.	"	Morning overcast.
21	63	43	"	"	
22	68	42	SW.	"	
23	60	36	NW.	"	
24	56	38	"	"	Overcast at night.
25	46	28	"	"	Morning overcast.
26	47	29	"	"	
27	55	33	"	"	
28	65	55	SE.	"	
29	66	53	v'ble.	cloudy.	
30	67	54	N.	fair.	Eclipse of sun.
Av'ge	65.5	49.5			

Summary.—Prevailing winds, N.E. and N.W. Weather,—fair, 23 days; rainy, 4 days; cloudy, 3 days.

Days.	Thermometer. Sun rise.	Thermometer. 2 P. M.	Wind. Direction	Wind. Force.	State of the Weather, and Remarks.
1	39°	50°	E.	Moderate.	Cloudy—lightly cl'dy—rain, hail
2	30	40	NE.	do.	Snow—cl'dy. [& snow in night.
3	26	44	NE.	do.	Clear day.
4	37	53	SW.	do.	Clear—lightly cloudy.
5	46	48	E. NW.	do.	Cloudy day.
6	33	48	N.	Blustering	Cloudy—clear.
7	34	57	NW.	do.	Clear—cloudy—with a heavy
8	44	52	W. NW.	do.	Clear day. [gale of wind.
9	32	49	NW. S.	Moderate.	Clear day.
10	33	52	SW.	Calm.	Hazy.
11	45	47	NW.	Variable.	Cloudy—lightly cloudy.
12	34	45	W. SW.	Moderate.	Clear—hazy.
13	34	54	SE.	Calm.	Cloudy—rain.
14	46	51	SE.	do.	Cloudy—rain in night.
15	28	31	NW.	Moderate.	Cloudy day.
16	20	30	NE.	do.	Sleet and rain—cloudy.
17	28	32	NE.	Blustering	Drizzle—rain.
18	44	47	NW. W.	Moderate.	Lightly cloudy.
19	43	47	W.	do.	Cloudy—flying clouds.
20	37	46	N.	do.	Lightly cloudy—clear.
21	34	43	W. NW.	do.	Cloudy—rain.
22	32	51	SE. S.	do.	Clear—flying clouds.
23	36	43	W. NW.	Blustering	Flying clouds—cloudy.
24	33	35	W.	do.	Cloudy—flying clouds.
25	29	33	W.	do.	Cloudy—flying clouds.
26	28	40	W.	Calm.	Clear—cloudy.
27	26	44	W.	Moderate.	Clear—flying clouds.
28	34	45	SW.	do.	Clear day.
29	36	50	SW.	do.	Cloudy—rain.
30	36	46	W.	do.	Clear—lightly cloudy—sun ecl'd.
Mean	34.57	45.10			

THERMOMETER.

Maximum height during the month, 57. on 7th.
Minimum do 20. on 16th.
Mean do 39.83

Days.	Max.	Min.	Wind.	Weather.	REMARKS.
1	72°	60	SW.	cloudy.	
2	76	56	"	fair.	
3	65	40	NW.	"	
4	65	49	SE.	"	
5	70	59	"	"	
6	73	51	SW.	cloudy.	
7	72	56	SE.	fair.	
8	73	46	SW.	cloudy.	
9	56	45	W.	fair.	
10	58	48	NE.	rain.	
11	50	41	"	"	
12	53	35	NW.	fair.	Fine weather.
13	63	41	W.	"	
14	65	39	"	"	
15	66	36	"	"	
16	65	39	SE.		
17	63	45	"		
18	64	44	"		
19	60	50	NE.	cloudy.	
20	57	48	"	"	
21	76	56	SW.	fair.	
22	60	55	NE.	cloudy.	
23	59	54	NW.	"	Misty.
24	72	58	SW.	fair.	Fine weather.
25	75	63	"	"	
26	70	40	NW.	"	
27	54	44	"	"	
28	59	45	W.	"	
29	60	38	"	"	
30	59	33	NW.	"	
31	45	33	"	"	
Av'ge	63.7	46.7			

Summary.—Prevailing winds, SW. and NW. Weather,—fair, 22 days; cloudy, 7 days; rainy, 2 days.

Days.	Thermometer. Sun rise.	Thermometer. 2 P. M.	Wind. Direction	Wind. Force.	State of the Weather, and Remarks.
1	31°	48°	SW. S.	Calm.	Clear—lightly cloudy—rain in n't.
2	40	45	S. SE.	Moderate.	Rain—drizzle.
3	32	40	W.	Brisk.	Lightly cloudy.
4	25	36	W.	Moderate.	Clear day.
5	26	46	W. SW.	do.	Clear—hazy—rain in night.
6	52	50	SW.	Brisk.	Rain—cloudy.
7	36	46	W. SW.	Moderate.	Clear day.
8	46	48	SW. W.	Brisk.	Cloudy—lightly cloudy.
9	29	36	W.	Moderate.	Clear—cloudy.
10	24	34	S. SW.	do.	Clear day.
11	24	42	W.	do.	Clear day.
12	32	36	W.	do.	Cloudy day.
13	32	40	SW.	Brisk.	Cloudy day.
14	36	20	W. NW.	Blust'ring	Cloudy—clear at 10 P.M. therm. 5
15	7	18	NW.	do.	Cloudy—sun eclipsed. [above 0.
16	28	50	W.	Moderate.	Cloudy—clear.
17	16	21	NE.	do.	Lightly cloudy.
18	24	30	NE.	do.	Cloudy day.
19	30	36	NE.	do.	Cloudy day.
20	30	36	SW.	do.	Cloudy day.
21	32	36	W.	do.	Cloudy day.
22	26	40	SE. SW.	do.	Cloudy day.
23	30	42	W.	do.	Cloudy—lightly cloudy.
24	30	30	E.	do.	Sleet—drizzle—rain.
25	30	31	SW.	do.	Cloudy day.
26	16	20	NE.	do.	Snow.
27	20	30	W.	do.	Cloudy day.
28	20	29	SE.	do.	Cloudy day.
29	26	29	NE.	Brisk.	Snow.
30	26	35	W.	Moderate.	Cloudy day.
31	30	37	W.	do.	Cloudy—lightly cloudy.
Mean	28.57	36.03			

THERMOMETER.

Maximum height during the month, 52. on 6th.
Minimum do. 7. on 15th.
Mean do. 32.30

It is proper to remark, that the register of Dr. Porcher is founded on observations made by a self-registering thermometer, which gives the lowest as well as the highest point during the day; whilst the observations at Germantown were made only at the hours indicated. Had the St. Augustine diary been formed in this manner, the point of observed depression would not have been so low, and consequently the thermometric difference between the two places would have been still more signal.

I am, dear sir,

Respectfully and truly yours,

ROBLEY DUNGLISON.

To DR. GEDDINGS.

SPONTANEOUS SALIVATION.

IN two of the preceding numbers of our Journal, cases of this affection have been published by Drs. Mackall and Chew. We find some interesting remarks on the subject by Dr. Hauff, inserted in the *Medicinisches Correspondenz-Blatt.*

The author remarks, that he has several times witnessed the disease. It attacks females more frequently than males; and chiefly those who are affected with symptoms of derangement of the digestive organs; as dyspepsia, constipation, a furred tongue, paucity of urine, dry and harsh skin, tumefaction of the liver, and perversion of secretion in that organ and the pancreas. Females with an irritable skin, and subject to miliary eruptions, are likewise liable to this spontaneous salivation. The individuals generally complain for some time, of a sense of itching of the tongue, mouth and gums, and lancinating pains of the teeth and jaws. The gums are found red and tumid, and the summit and borders of the tongue are of a shining blueish red colour. The disease progressing, the pains become more considerable; the teeth seem to be elongated; limpid saliva flows copiously from the mouth; the commissures of the lips and the gums are covered with aphthous ulcerations, similar to those which attend a mercurial salivation, and the breath becomes fœted. Sometimes the discharge of saliva is so copious, that several vessels are filled in the twenty-four hours, and the disease may continue for days and weeks,—then subsiding, and leaving the gums red and spongy, and the teeth loose.

The treatment which was most successful, consisted of such means as are calculated to correct the derangement of the digestive organs. In one case, in which the liver was enlarged, and the individual affected with a chronic miliary eruption, Dr. Hauff succeeded promptly in arresting the disease, by mercury.

SELECTED PAPERS.

Lecture on Continued Fever, by Wm. Stokes, M.D. *delivered at the Medical School, Park street, Dublin.*—Session, 1833–4.

(Concluded from page 46.)

Towards the conclusion of my last lecture, I directed your attention to direct and indirect adynamia in fever. The first or direct is that prostration of strength which results from idiopathic or original disease; the second or indirect, is that induced by the re-action of the secondary local inflammatory or other affections. I stated that in many fevers we had both kinds of adynamia; the direct produced by fever, and the indirect by local disease, which supervenes during the progress of the original disease. The treatment must, therefore, be modified according to the circumstances of the case. The first requires stimulants; the second or indirect adynamia must be treated by antiphlogistic measures, so as to relieve the inflamed organs, but the employment of these must be much less energetic than when the organs are primarily inflamed, and we must also keep the general condition of the patient in view. The modification of treatment must be obvious, when we bear in mind, that idiopathic inflammation occurs in healthy subjects, but it supervenes on a constitution previously depressed or debilitated by the general disorder of the functions caused by fever. The local inflammations induced by fevers occur when the constitution is very much injured, when the solids and fluids are very much affected; and when the functions of innervation, respiration and circulation are in an abnormal condition. It is therefore manifest that the antiphlogistic measures must be employed with caution and judgment, and with less energy in the secondary adynamia which exists during the progress of fever.

I informed you on a former occasion of another important practical fact—that in a vast number of cases of fever, in the advanced or collapsed stage, and sometimes in the early period of the disease, the employment of stimulants, may be necessary, even in cases in which the fever is accompained by local disease. In some cases too, there is a very profound prostration in the early stage, and this was considered characteristic of putrid, or very low fever by the ancients. There is a stage in all continued fevers which is usually the advanced one, when diffusible or general stimulation will be indispensable, though there may be symptoms of local irritation or inflammation. This was the practice of the ancients, as well as of the most experienced of the modern physicians, and was extremely beneficial. The former supposed the sinking or the

last stage was invariably caused by debility, and this led them to use powerful stimulants and tonics. Sydenham, Huxham, Morton, and many other English physicians employed this class of remedies, while Boate and O'Connell, who were their disciples in Ireland, and the Gregories and Cullens in Scotland, adopted this practice. I might name many eminent writers on fever, in the last and present centuries, who advocated and employed stimulants under similar circumstances, but I must observe that the profession of late years have been opposed to this treatment, because they considered local congestion or inflammation the real or immediate cause of fever. This is falling into the opposite extreme, as I trust I have already proved by incontrovertible evidence. The concurrent testimony of experienced practitioners is in favour of stimulants in the last stage of fever, and numerous recoveries have taken place by this plan, even where symptoms of local lesion were apparent. We meet with cases in which there is profound adynamia with local affections in the last stages of fever, even after antiphlogistic measures have been fully tried, and cannot be continued with safety; and, under such circumstances, the use of stimulants assists the efforts of nature, and time is gained for the treatment of the local affections. I stated, on a former occasion, that we meet with a pure essential or idiopathic fever, a disorder of the whole economy, without any primary local affection; but that local disease is, in general, complicated with, or consequent to, fever. In the former species, we are justified in employing antiphlogistic treatment, when excitement or re-action runs high; in a word, the treatment of most cases of fever is analogous to that of idiopathic inflammation. We employ general and local bleeding, but in the advanced stage we administer stimulants and tonics. I have told you, that even in all cases of inflammatory disease, a stage arrives when you must discontinue antiphlogistic measures, and adopt the opposite line of practice; in fact, you must give stimulants; and the same thing obtains in fever, whether we view it as a primary affection of the whole system, or as complicated with local irritation or inflammation. I informed you also, that you might, in many cases, combine antiphlogistic and stimulant remedies; the latter to be so regulated as to support the strength without increasing the local affection. We often meet local inflammation, pneumonia, enteritis, &c. in the advanced stage of fever, and in such cases, while we reduce the local disease, we must support the strength with nutritious aliment and wine. There is an important remark made by Dr. Grant, in his work on Fever, with respect to this point, which I shall quote. "I know," says he, "two physicians, both in considerable practice, and both honest men, who have constantly treated fever badly from different causes. The one never gave cordials, wine, or nutritious food, during the whole disease; the other, after the fourth day, never gave any thing else. A combination of both these modes, employing each according to

the circumstances of the case, would be very excellent practice. Their error, however, was not entirely the same, nor did the same effects result from these opposite modes of treatment. The patients treated by the physician who persevered in the antiphlogistic system seldom died, but their recovery was tedious and protracted. Those who were treated by stimulants throughout the entire disease, seldom recovered." You perceive, gentlemen, how well these remarks accord with the treatment I have already recommended in fever. The first physician generally cured his patients, but their convalescence and recovery were slow, because he used antiphlogistic too freely, and for too long a period. He was ignorant of the fact, which I have repeatedly mentioned to you, that after a certain time, and at the advanced stage of the disease, antiphlogistics lose their efficacy; and his patients may, therefore, have recovered by the unaided powers of nature. He was also ignorant that, in the last stage of fever, the disorder of innervation requires stimulants, though inflammatory action may have previously existed. The other physician was no better informed, for he employed nothing but stimulants, being ignorant of the frequent complication of local inflammation with fever, and, consequently, lost or destroyed his patients by the premature and indiscriminate use of stimulation. There cannot be the slightest doubt, that the practitioner who blindly follows one mode of treatment in every case of fever, will be most unsuccessful.

I shall now proceed to describe the analysis of the respiratory symptoms and their treatment. I have already noticed the nervous systems; and the next in order are those of the respiratory system. I wish to make some further remarks on the cerebro-spinal system, and to direct your attention to some researches which have been lately made on the spinal and ganglionic systems during fever. The result of these researches is very unsatisfactory, and throws no manner of light on the nature or treatment of fever. This is a singular fact, and one very frequently observed, that in many cases of fever characterized by disordered nervous symptoms, as delirium, coma, &c. we cannot detect any morbid appearance after death, either in the brain or its membranes, or in the spinal cord. It is true, however, that in a few rare cases, the sympathetic nerves were found affected; but this was observed so seldom, and with so little constancy, that it is impossible to establish any direct connection between a diseased state of the ganglionic system of nerves and typhus. Let us now examine the symptoms furnished by the respiratory system during fever.

We frequently observe pulmonic symptoms in fever, and these may be slight or severe. When slight, we can readily remove them, but when severe, as in bronchitis, they often cause death by asphyxia, from excessive secretions. This is frequently the result in aged persons, who have long suffered from what is called "winter cough," or, to speak more

correctly, chronic bronchitis. There is one general observation which applies not only to derangements of the respiratory system, but equally to those of every organ during fever, and this is, that the functional derangement of each organ is seldom proportional to the morbid appearances after death. The thoracic symptoms may be apparently slight, and by no means such as to excite alarm, though after death we shall find universal bronchitis, extensive pneumonia, or considerable congestion. This insiduous latency of disease is remarkable in all inflammatory affections during the progress of fever. It may, perhaps, be explained by considering the deranged and depressed state of the nervous system during fever, which impairs and blunts sensibility; and hence the patient does not complain, though the symptoms of disorganization may be observed as not to attract sufficient attention. This view was entertained by Hippocrates, who said, in his aphorisms, that in case of severe disease, when the patient does not complain of any pain, there is disease of the brain; and thus he accounts for the absence of severe pain by the disordered state of the brain.

In describing catarrh combined with fever, you are to remember that this, as well as all other local inflammations, is secondary or symptomatic. It is in this sense we view such local lesions. Thus, when I mention catarrhal or gastro-catarrhal fever, I do not mean the fever when these diseases are idiopathic, but when they are symptomatic of typhus, or are the result of that disease. I have adduced many arguments to prove that cerebral affections were not the cause of fever, neither are those of the respiratory or digestive system. The conclusions of Andral, Louis, Laennec, and various British authors who have written on fever, agree on this point. I would strongly advise you to peruse Laennec's work on Auscultation, in which you will find proofs of the great attention this illustrious man had devoted to the secondary affections of the lungs in fever.

It often happens that we meet with bronchitic affections, which may exist during the whole, or the greater part of the period of fever, attended with such little violence, that the patient may recover without any remedies having been employed; and others will pass through a continued fever, having but slight congestion depending on inflammation of the bronchial mucous membrane, without any notice having been taken of it. It is important to know that such slight affections may, at the end of seven or ten days, become so formidable as to assume a very intense character, and even destroy the patient. In all cases where there is cough, you should examine the chest daily with the stethoscope, and also employ percussion in the manner which I shall mention immediately. In such cases auscultation and percussion are of inestimable value, as a means of diagnosis. The existence of a slight cough or bronchitis does not warrant an unfavourable prognosis; but it should always render you

cautious in forming one. Watch the progress of the catarrhal symptoms, and be certain that you do not allow them to advance. In a case in which there is cough which is not troublesome, you will, in general, find a few sonorous râles, though the respiration is clear on percussion. There is no danger in such a case; but if the symptoms increase, if the countenance become livid, the breathing extremely difficult, there is then a dangerous bronchial affection. In many cases, though there may not be a symptom of bronchitis, we discover the most intense form of this disease on employing auscultation. In such cases, persons unacquainted with the use of the stethoscope, and who depend on symptoms only, may be led into fatal errors. Even those acquainted with auscultation, fall into serious errors, by neglecting to make a proper examination. Again, if you apply the stethoscope while the patient is lying on his back, and breathing in the ordinary manner, you can only ascertain a feebleness of respiration, with a partial sonorous râle. If you were to form a prognosis from such superficial examination, you would most assuredly fall into error, for though the râles may be few and isolated, on raising the patient into the sitting posture, and desiring him to make a full respiration, so as to cause the air to enter the minute bronchial tubes and air vesicles, the râles become intense and audible over a large portion of the lung. It is right to state, that the middle inferior and posterior parts of the lung are most commonly affected with bronchitis, and this disease may simulate pneumonia. In such cases it is singular, that according as the patient gets better, the râles become louder and more distinct; and here we have the anomaly of increase of sound indicating a decrease of the disease. This is explained by the fact, that when the bronchitis is at its height, the minute bronchial tubes and air vesicles are principally engaged, and the engagement of the mucous membrane causes an increased quantity of mucus, which fills them and prevents the ingress of air; and the consequence is, that the râle is scarcely heard; but when the disease is on the decline, and the minute tubes become free, the bronchitis, being confined to the larger tubes, we can then hear the sonorous râle distinctly during ordinary respiration. It is right to state, that many of these cases terminate fatally. In such cases there is a low adynamic state, the respiration is hurried, the face is livid, there is a râle or rattle in the throat, and in a few hours the patient dies.

Dissection shews marks of intense bronchitis, and the bronchial tubes are filled with a sanguinolent viscid mucus. In some of these cases there is an excessive secretion from the bronchial mucous membrane, which takes place suddenly, and destroys the patient. It is a remarkable fact, that such cases are often complicated with gastro-intestinal irritation or inflammation; and this is one of the commonest and most fatal forms of fever. Sometimes the disease is most urgent in the respiratory, and

at other times in the digestive system, and, in some instances, there is an alteration of morbid action between thoracic and abdominal disease. On one day, the cough and auscultic signs of bronchitis are prominent, but in a day or too, these symptoms are absent, there is pain and tenderness of the abdomen, and the tongue has become red and parched. Again, the abdominal symptoms disappear, and the thoracic return, and thus we have repeated alternations of the thoracic and abdominal symptoms so frequent as to be considered the commonest form of fever. It is, therefore, most important in practice to bear in mind, that while we prescribe for the chest affections, we must be careful not to irritate the digestive system.

It is worthy of remark, that bronchitis is accompanied by more lividity of the countenance than pneumonia. This fact is in accordance with the opinion, that the portion of the lung in which aeration is effected, is the bronchial mucous membrane, and not the air vesicles. When the air cells of the lung are inflamed, there is very little lividity; but we never see a severe bronchitis without it. I may mention here, that I have seen many cases of lividity, in which the temperature is very much increased, a strong proof that animal heat depends on something else besides the aeration of the blood.

Symptoms of bronchitis may be well marked, or entirely absent, during fever, and so may those of pneumonia, but in both cases auscultation is of extreme value, by enabling us to form an accurate opinion on the exact nature of the morbid lesion. It is also important to know that the symptoms of pneumonia are most commonly absent. This is the most frequent state of things during typhus. In these cases we often observe the patient to get much worse, and all the symptoms of sinking to appear suddenly, but under such circumstances we often discover the existence of latent pneumonia, or some other visceral lesion. We detect the crepitating râle over a portion of, or the whole lung, and the chest sounds dull on percussion. Now I contend that a practitioner who is unacquainted with auscultation or percussion will entirely overlook such cases, and I should say is wholy incompetent to undertake the treatment of any case of fever. In my opinion there is no excuse for any practitioner who neglects the study of auscultation, unless compelled by defect of hearing; and those who oppose the stethoscope, or ridicule it, are generally persons who are either too old or too lazy to learn, and who, in the cases under consideration, are wofully bad practitioners. It has been stated by some writers that the lesions of the respiratory organs are in general of a more congestive than inflammatory nature, but this conclusion I believe to be erroneous. I have repeatedly found, in a vast majority of such cases, all morbid appearances of acute inflammation, thickening and ulceration of the bronchial mucous membrane, and sanguinolent secretion, more frequently than congestion. But

I would ask those who are of a different opinion, how they can detect such lesions when all symptoms are absent, unless by auscultation? I should also ask them how they could distinguish such lesions when the patient is delirious, and his respiration scarcely disturbed? It must be obvious to every one of you, that, in such cases, auscultation and percussion afford the only means of forming an accurate diagnosis; and without the employment of these, the real cause of the mischief cannot be detected, an erroneous view will be taken of the case, the sinking will be ascribed to debility, stimulants will be exclusively employed, with the positive certainty of aggravating the actual disease, and the patient will indeed be destroyed. I hold it as essential to examine the chest in the advanced period of fever, at every visit, as it is to press on the abdomen and hypogastric region, because, during this stage there is frequently either inflammation of the thoracic or abdominal viscera, and frequently distended bladder, which requires the repeated use of the catheter. Physicians have for a long time pressed on the abdomen in the last stage of fever, when there was low muttering delirium, and when the patient is of course unable to direct their attention to this region; and they very often detected pain on pressure, or a distended bladder, and on dissection they found that intense inflammation of the bowels had in reality destroyed the patient. The conclusion is therefore well founded, that in the last stage of fever, we should daily examine the state of the thoracic and abdominal viscera, and employ every means of diagnosis, so as to form an accurate opinion on the state of these organs.

But to resume my observations on the morbid lesions of the respiratory organs, I have to mention a remarkable circumstance, namely, that of all tissues which compose the viscera of the chest, the pleura is least liable to morbid lesion. This is proved by a great number of recent dissections, which shew that bronchitis and pneumonia were entirely absent. In idiopathic pneumonia there is generally some degree of pleuritis, but in pneumonia of fever the latter is observed very rarely. This, as well as other observations with respect to tissue, establish the fact, that mucous and parenchymatous tissues, are most commonly attacked with inflammation during the progress of fever. It is, however, true that the effusion of bloody serum into the cavity of the pleura is a common occurrence in fever, but is still rarer than the former lesions. It is a well known fact, that inflammation of the serous membranes during fever is comparatively of rare occurrence. We occasionally meet with arachnitis, but very seldom with pleuritis, pericarditis, or peritonitis. Though we frequently observe pneumonia and enteritis yet pleuritis and peritonitis are seldom present in such cases. This leads us to the conclusion that serous membranes are least liable to inflammation during fever. I think we may explain the exemption of serous membranes from inflammation during fever by the fact, that they possess but little

sensibility, and (for we cannot trace nerves in them) they are only supplied with white blood, which is least affected during fever.

But though I impress upon your attention the frequent existence of inflammation of some one of the pulmonary tissues during fever, I must also inform you, that you may observe all the symptoms of chest effusion, though every auscultic sign may be absent. In such cases thoracic effusion depends on functional derangement; it is purely sympathetic, and generally caused by gastro-enteritis. Here, again, you may have additional proof of the value of auscultation. Without this means of diagnosis you would treat a symptomatic for a real affection. It enables you to discover that the thoracic organs are free from disorganization, and consequently it directs your attention to other tissues, as the cause of derangement in these organs. But you must always remember that functional derangement, when of long duration, very generally terminates in actual disorganization. This fact applies to all organs; but functional derangement, when unaccompanied by fever, may continue for a long time without terminating in disorganization. Neuralgia in the different organs affords many examples. It is also a fact, that when disorder of the function is accompanied by fever, disorganization very generally occurs. There is another fact as regards thoracic inflammations which I have frequently observed, and one that you should remember—it is this: that when there is gastro-enteritis, succeeded by functional disorder or disorganization in the lung, the lower lobe of the lung is most generally affected. There seems to be a stronger sympathy between the left lung and the stomach than the right, and this has been long observed; in fact, there is a stronger sympathy between the organs on the same side of the body. In cases of fever where there is gastro-enteritis, you should therefore direct your attention to the left lung or side of the chest. Another proof of the validity of this pathology is, that inflammation of the lower lobe of the left lung is frequently connected with gastritis and pericarditis. This sympathy requires further explanation than that given by Hunter, who referred it to the contiguity of organs.

It is important to mention that the disease of the lungs may assume a chronic form in fever; we often observe that the bronchial symptoms may be mild during fever, but very often on the cessation of fever become formidable, and induce phthisis. There appears to be something in fever which has a strong tendency to excite the development of tubercles. We have had numerous examples of this kind in the Meath Hospital; you will find an account of them in a paper of mine published in the Transactions of the Dublin College of Physicians, during the epidemic of 1826. We frequently observed that our patients who were recovering from fever were suddenly attacked with phthisis, which terminated rapidly. The disease ran through all the stages from the

recent development of tubercles to the formation of cavities. In one case the patient died of consumption in seven days after his convalescence from fever. Here is a strong reason for careful and repeated examination of the chest in fever. If towards the termination of fever you discover dulness of sound under one or both clavicles, with diminished respiratory murmur and other signs of phthisis, there is reason to suspect the existence of tubercles. If the symptoms increase daily, you may be certain of your prognosis; but you must remember that bronchitis after fever very strongly simulates phthisis. A patient after fever, who in a debilitated state will, if attacked with bronchitis, have the usual symptoms of phthisis, will labour under bad cough, copious expectoration, laborious breathing, and hectic fever; yet in many instances recovery may be expected by judicious treatment.

There is another condition of the lungs in fever, which demands great attention; it is a congestion of the posterior and inferior parts of the lungs which is observed in the last stage of typhus or other diseases, in which the patients have been a long time on the back. It is also most common in debilitated and aged persons. It may cause death by obstructing the pulmonary circulation and asphyxia. It occurs in the last stage of fever, when death approaches, and was called perepneumonie des agonizans, by Laennec; but I think he has taken a limited view of the subject, for it may come on long before the termination of fever; in fact, it may occur in all cases in which the patient has reposed on the back. It bears a strong resemblance to those spots and discolourations observed on the back soon after death, which we call cadaverous lividity, and which are induced by the gravitation of the blood to the most depending parts.

When we raise a patient in the last stage of fever, who has been for a long time on his back, and examine the postero-inferior part of his chest, we will find more or less dullness on percussion, and sometimes a degree of crepitus, but after the patient has remained a short time in the erect position, the morbid symptoms disappear as the lung regains its ordinary permeability, unless the congestion has existed for several days. This condition was noticed by Avenbrugger in exanthematous diseases, and by the celebrated Boyer, in cases of fracture, in which he advised that the patient should not be too much on his back. According to the researches of M. Piorry, this kind of congestion is most common in aged or debilitated individuals, and in those labouring under disease of the heart. This disease is scarcely remediable in aged persons, or those under the circumstances mentioned in the last stage of fever. Leeches and counter-irritation may be useful in some cases, but cannot be employed in others. The great object is to prevent congestion by a frequent change of position, and hence we recommend that patients in fever should repose on either side in preference to the back, and be

frequently changed. But in the last stage of typhus the patient lies on his back, which favours the production of congestion; and it was observed by our predecessors that this position shewed great prostration of strength, and was a bad symptom, though they could not explain why it was so. It depends on one or more of the following causes:—1st, lesion of innervation; 2nd, change of the blood; 3d, position; 4th, want of proper function in the lung, for a patient expands the posterior part of his lung but very little during respiration, when he lies on his back. Such are the causes of this hypostatic pneumonia. In some cases I have found the use of cupping glasses and blisters of service. In such cases we must support the strength with wine, ammonia, and the decoction of polygala.

I shall now direct your attention to the treatment of catarrh and pneumonia in fever. At one time I was rather opposed to bleeding in such cases, as in some cases it did but little good, and in others great injury. I have subsequently seen depletion of great value in robust subjects in the early stage of fever, when the dyspnœa depended on inflammation, and not on an enormous secretion into the bronchial tubes. The diagnosis in such cases is readily made by the use of the stethoscope. Now you should know that dyspnœa depending on inflammation, will be removed by depletion, but that caused by copious secretion will not. In the latter case the loss of blood will increase the danger of asphyxia, for in proportion as the prostration of strength increases, the power of expectoration fails, and the tracheal râle supervenes. If a young robust subject suffer from catarrh in fever, was attacked with bronchitis and had hot skin, full strong pulse, and a good deal of re-action, you might employ general bleeding. In such cases I have used it with the best effects, though as a general rule in pulmonary diseases during fever, I think local bleeding preferable; cupping, leeching, and even dry cupping, afford great relief, and often effect a cure. The last is a very valuable remedy indeed, and one of the best in the bronchitis or pneumonia combined with typhus. I have repeatedly removed a degree of congestion sufficient to cause dullness by this remedy alone, and the disease disappeared in twenty-four hours: you also may apply blisters with advantage, and order small doses of ipecacuanha, calomel, or the compound ipecacuan powder.

In cases in which there is an excessive secretion of mucus into the bronchial tubes there is great danger of suffocation. In such cases you must support the strength, and order ammonia, polygala, wine, nutritious food, and the camphorated tincture of opium: one of the best proofs of the good effects of wine in such cases, is the falling of the pulse. It is also very important to observe the temperature of the body, and I feel so convinced of this, that for a long time past I have been in the habit of ordering the body to be clothed with soft flannel; and I am confident that this is of great utility. But we sometimes meet with cases in which

the patient is threatened with suffocation from the bronchial obstruction in the lungs; under such circumstances we exhibit emetics, but all of these may fail to act on account of the insensibility of the stomach. This state of the stomach depends on lesion of innervation, on asthenia of the organ, and according to some, on determination of blood to another organ, or on imperfect aeration of the blood. I have produced vomiting so often as five or six times, and yet the patient died of suffocation. The profession are much indebted to my friend Dr. Mackintosh, for directing their attention to this disease. My colleague, Dr. Graves, has also made some important additions to the treatment. In one case he applied a moxa along the course of the eight pair of nerves, and in three others, he ordered an enema composed of starch, ten grains of quinine, and thirty drops of tincture of opium. By this means he supported the strength, and prevented the mucous secretion, for it was long known that opium will check the bronchial secretion in common catarrh. I would advise you to peruse his paper in a late number of the Dublin Medical Journal. The last pulmonary disease in fever is pneumonia, which will be detected by auscultic signs, dullness of sound over a greater or less extent of the lung, fullness of respiration, and the respiratory râle. If the patient be robust, the strength but little impaired, the fever inflammatory, the prognosis is more favourable. In such cases one small bleeding may be used; but even this requires great caution; you cannot deplete as in common pneumonia. We next use local bleeding, dry cupping, blisters, and calomel with opium. It often happens that the gums become affected by the mercury in three or four days, but then its effects go off, and in a day or two return. It is also remarkable, that ptyalism is very seldom produced. Tartar emetic is improper in this kind of pneumonia, as it can never be employed, except after copious bleeding, which cannot be resorted to in typhus. There is also another contra-indication to it—the complication of gastro-enteritis; and whenever this exists, tartarized antimony cannot be employed with safety. We, therefore, prefer calomel and opium, local bleeding, blistering, stimulating expectorants, with a nutritious diet. When the surface of the body becomes cool, the pulse weak and small, and prostration considerable, we should use wine. The disease disappears very slowly, the convalescence is tedious, and the patient requires constant watching.

[*London Medical and Surgical Journal, Jan.* 1835.

REVIEWS.

Admonere voluimus, non mordere.——
Sunt bona; sunt quædam mediocria, sunt mala plura.

Traité Theorique et Pratique des blessures par Armes de Guerre, rédigé d'après les leçons cliniques de M. Le Baron Dupuytren, Chirurgien en chef de l'Hotel Dieu, et publié sous sa direction par M. M. les Docteurs A. Paillard et Marx, 2 tome, pp. 522 and 527, Paris, 1834.

Theoretical and Practical Treatise on wounds inflicted by Arms of War, &c.

Few surgeons have been so successful in their professional career as M. Dupuytren, and none have acquired a more brilliant reputation. Possessed of excellent judgment, a retentive memory, and great zeal and enthusiasm in his professional pursuits, he added to these qualities, a remarkable penetration, a quickness of perception seldom witnessed, and which admirably fitted him for the investigation of diseases. And for this purpose, no one perhaps ever enjoyed greater opportunities. Entrusted with the charge of one of the most extensive hospitals in Europe; enjoying moreover a large share of private practice,—he could not fail to be familiar with the nature, and various forms of disease;—and it was particularly at the bedside of the patient, that his superiority in diagnosis, and excellence as a practitioner, were strikingly manifest.

Among the different classes of disease or injury, which the surgeon is called upon to treat, there is one, the entire knowledge of which cannot be obtained in time of peace, neither in the quiet walks of the hospital, nor in the gradual course of a private practice, but must be sought among the horrors of war, and scenes of death and bloodshed. It seldom falls to the lot of surgeons at home, to have opportunities of witnessing the effects produced by arms of war. The war, however, of 1814–'15, and the celebrated revolution of July, 1830, afforded to M. Dupuytren these advantages;—the wounded were received into the hotel dieu, and placed under his guidance and direction. It was from the observation of these numerous cases of injury, that the principles contained in the work before us were derived; and to these, in fact, it owes it origin. It is indeed a series of lectures delivered by M. Dupuytren, at the request of several physicians and surgeons, as well as students and strangers. The work itself consists of two volumes, the

first of which is taken up with the consideration of wounds in general, without reference to the particular part or region in which they may be inflicted. It is divided into twelve chapters. The 1st is devoted to a description of the different weapons or arms of war, which are in modern use, and contains much that is curious and interesting, particularly to the military surgeon. We shall omit this, however, and pass to the consideration of the effects produced by these agents—subjects with which we are more particularly concerned.

The effects produced by arms of war are exceedingly various, and must depend, of course, upon the nature of the weapon, the force with which the injury may be inflicted, and the nature of the organ or part concerned.

As almost every thing has been applied to the purposes of war, and may be used as a weapon, offensive or defensive, the appearance and the nature of wounds, produced by these agents, vary exceedingly; some inflicting injury, by division of the tissues or by hemorrhage; others by violently bruising or tearing the parts, &c. Hence, M. Dupuytren has made a division of wounds into—"1st, punctured—2d, incised—3d, wounds by puncture and division—4th, contused wounds—5th, wounds by commotion—6th, wounds by crushing of parts, (*ecrasement*)—7th, lacerated wounds—8th, wounds par arrachement—9th, wounds by attrition, i. e. such as are caused by bodies propelled by the force of air or steam—10th, wounds produced by small fire-arms, as guns, pistols, &c—11th, wounds produced by cannon balls, &c.—12th, wounds produced by gunpowder.

In wounds produced *par arrachement*, there is laceration produced simply by excessive extension; or this may be united with torsion. The cases of limbs torn off by machinery will illustrate this. We have used the word in this place, as its meaning could not be fully expressed by another in English. Under the head of punctured wounds, M. Dupuytren alludes to the effect produced by round and pointed instruments, as bodkins, spindles, &c. The form of the wound inflicted by these instruments seems not to have attracted attention, although, from its singularity and difference of character from that which has generally been supposed, it is worthy the attention of the medical jurist. From several observations made upon the living and the dead subject, M. Dupuytren has ascertained, that wounds made by these instruments are similar, in almost every respect, to those inflicted by cutting weapons. The borders of the wound are even and nearly in apposition, and if they are separated, slight tension of the skin will effect their union;—punctures of this nature always have the same direction in the same region. In the neck, and on the anterior part of the axilla, the direction of the puncture is from above, downward. On the thorax, they are parallel to the direction of the ribs, or the intercostal spaces. On the anterior

part of the abdomen, they are oblique from above downwards, and seem to assume the direction of the muscular fibre. In the middle of this region they are vertical, while on the members they are parallel to the axis of the limb. These facts appear to show, clearly, the different direction of the fibres of the skin in the different regions, and the instrument seems to act merely by separating them.

Case.—"Charles Levauvre, aged 33, strong constitution and sanguine temperament, attempted suicide by stabbing himself three times in the region of the heart with a pointed bodkin. When taken to the hotel dieu, three small wounds of two lines in length were observed opposite the 7th rib. The lips of the wound were equal and very near each other, and the angles of it very acute. They were parallel with the rib, and resembled those made with a penknife. The weapon was procured and several punctures made on the dead subject, which presented the same appearance.

In wounds of the hollow organs, the injury produced varies greatly, according to the state of emptiness or distension, and our conduct must vary accordingly. Should the weapon which has inflicted the injury be still retained in the wound, (suppose it were the bladder,) the urine should first be drawn off by the catheter, before the weapon is removed, otherwise the sudden withdrawing of the instrument might suffer the urine to escape into the cavity of the abdomen, and produce the most intense inflammation and even death. Should it be in the heart, it would be necessary, in the first place, to diminish the quantity of circulating fluid by v.s. Many cases are on record, of wounds of this organ, in which the patient recovered. Its structure, indeed, is well adapted to secure it against the usual consequence of puncture of the hollow organ, —the loss of blood being prevented by the oblique arrangement of its fibres, as well as their contraction, which is sure to ensue.

In speaking of wounds of the articulations, after enjoining the usual rigorous antiphlogistic treatment, M. Dupuytren recommends the application of a blister around and upon the wound itself; and speaks of this treatment as peculiar to Fleury De Clermont.—It may be new in France, but the practice is familiar enough in this country, and was we believe first recommended by Dr. Physic.

Foreign bodies, although, for the most part exciting inflammation in the organs in which they are lodged, do, it is well known, often remain in the system for years, without producing any or very serious inconvenience. This is the case with some even, which are very sharp and pointed; and of this M. Dupuytren relates a curious instance: "An officer, with a view to commit suicide, inserted in the region of the heart, one of the long black pins, known by name of *epingle a friser*. This pin penetrated the pericardium and heart, and remained in this viscus

during life time. After death the pin was found, the officer having died of another disease."

M. Dupuytren has often had occasion to observe the condition in which foreign bodies exist in the different parts of the body. "Whenever they excite inflammation and suppuration, they are enveloped by a purulent cyst of the nature of mucous membrane, and, at the end of a certain time, a fistulous communication is formed between them and some point of the surface or interior of the body. On the contrary, when they excite neither inflammation nor suppuration, we find them surrounded by a cyst, the form of which corresponds to their own, but whose organization is similar to those of the serous membranes. In their cavity is constantly observed a limpid serosity, analogous to that which lubricates the serous membranes. This remark is not only curious, but important, with regard to practice. If, indeed, in extracting these foreign bodies, we remove them only after making a simple incision of the cyst, and then close the wound, in order to obtain union by the first intention, we find almost always a new tumour produced, by the quantity of serum developed in the sac. It is necessary then, when extracting balls to remove the cyst which surrounds them, or to fill it with charpie, in order to excite inflammation, and obtain adhesion.

But although foreign bodies sometimes remain at rest in the tissues, and give rise to little or no irritation, it is well known that they often travel an immense space of the surface, and even penetrate deeply the interior of the viscera. Particularly does this apply to sharp and pointed substances, as pins, needles, &c. If they traverse the body rapidly, they leave no trace of their passage through the organs. On the contrary, if their passage is slow, they are surrounded by an adventitious serous membrane. In general, they have a tendency from the interior to the external surface. Sometimes, however, this is reversed; but even then there is a strong determination to the interior of the intestinal canal, which in fact may be considered as a continuation of the external surface. It is an interesting fact, remarked by M. Dupuytren, that substances traversing the serous membranes never fall into the interior of these sacs, whereas they frequently, after piercing the serous tissue, penetrate into the mucous cavities. Thus pins which have been swallowed, have been known to pierce the bladder, and being there retained, give rise to the symptoms of stone, and actual formation of a calculus. Of this M. Dupuytren cites an instance. The above cases show a most beautiful provision of nature. We see these substances almost by instinct, as it were, shunning the serous cavities, where they could not fail to excite inflammation, and all its pernicious consequences, and tending towards the mucous surfaces, which either readily allow their elimination, or at least support their presence with less irritation. There is a singular and almost incredible propensity among some females, to swallow pins, needles, and other sharp and pointed bodies. M. Dupuytren has

remarked several cases of this kind in the hotel dieu, and among others, that of a female, who swallowed an enormous quantity of pins and needles, and was reduced by the suffering and pain occasioned by their progress through the skin to a great degree of emaciation. He has opened more than a hundred abscesses, on the body of this female, in which there were always one or two needles or pins. Hardly any movement could be made, without experiencing the greatest suffering. The patient finally died, and on opening the body, many hundreds of pins and needles were found scattered through all the different parts of the body.

We shall pass over the chapters devoted to the consideration of incised wounds, as they do not present any thing of peculiar interest, with the exception, perhaps, of a few pages on wounds, with complete separation of parts. These injuries, when produced by instruments which tear, bruise, or disorganize the structures to any considerable extent, are incapable of reunion; neither can this be expected, when the member is of considerable size. Here the part is too depending on the general system, to retain its vitality sufficiently long, and even were it united to it, as it could only be restored by the action of the capillaries, the extent of this vital action would be too limited, and the part which was separated must die before sufficient circulation and innervation could be established. It is, therefore, only in parts which are small and have been recently separated from the body, that union can be effected. The more speedily this is attempted after the injury, the greater chance is there of success; but it is probable that it may be accomplished at any time, so long as the heat of the part remains, and the blood continues fluid, thus manifesting the existence of the vital properties. Thus M. Dupuytren relates the case of a physician who, in extracting a tooth from a child, by mistake drew out one of the permanent teeth. Discovering this, he endeavoured to find the tooth. It had fallen on the floor, and more than an hour elapsed before it was found. By the advice of M. Dupuytren, it was again replaced; the tooth lived, and, at the end of eighteen months, was as firm and useful as the others. Similar facts have not unfrequently been observed. In this case, the vitality of the part remained, probably, much longer than usual. It is well known that parts, which are naturally at great distances from each other, may sometimes be united, as the *Talicotian* operation fully exemplifies. Accidental defects of one individual may sometimes be supplied by another. There have not been wanting individuals kind enough to supply their neighbours with integuments sufficient to repair their noses, when destroyed by accident or disease. The experiments of Hunter are familiar to most readers, and we have seen the spur of a cock which had been transplanted to his head, and had attained the length of two or three inches. M. Paillard and Marx, allude to some very interesting experiments of this kind performed by M. Baronia.

Wounds made by Incision and Puncture.—The character of these wounds may easily be inferred from that of the instruments by which they are inflicted, which having a sharp point, are well calculated for plunging profoundly into the different parts of the body, while by their cutting edge they divide the tissues to a considerable extent. From this it results that there is more hemorrhage; the nerves are more frequently divided, and from the division of the muscles, hernia is more apt to ensue, than in cases of punctured wounds. Sometimes, however, it happens, that the viscera, particularly those of the abdomen, some of which are smooth, loose, and yielding, evade the weapon which pierces this cavity. M. Dupuytren relates an interesting case: "M. N. under the influence of domestic affliction, resolved to destroy himself. To accomplish this, he placed the handle of his sword against the wall of his chamber, and precipitated himself against its point. It passed entirely through the abdomen;—M. Dupuytren was called, and found him seated on a chair; the point of the sword eight or ten inches from the back, and upon the right side of the vertebral column. The patient appeared to suffer very little; there was no sign of effusion of blood or any other fluid into the abdomen cavity, nor of any lesion of the viscera. M. Dupuytren extracted the weapon, not, however, without some difficulty, and a fear that hemorrhage, which had been prevented by the presence of the sword, might occur as soon as it was withdrawn. There was none however; and the patient, after three or four bleedings and a few days of repose, was entirely cured."

Upon this part we shall not dwell, but pass to the consideration of a state of the system, which is often found to accompany gun shot wounds; and as its consideration is of great importance, and has been somewhat neglected by authors, we shall speak of it somewhat in detail. This affection is generally the consequence of a severe attrition or contusion of some part, and is called stupor, (*stupeur.*) When this state exists, the sensibility at the seat of injury is greatly diminished; so much so, that it can frequently be amputated without the consciousness of the patient, who is indifferent to all that is taking place about him. In these cases, the heat of the body is greatly reduced, and the limbs are sometimes of icy coldness. A deadly shock has been inflicted on the system, and all the organs are struck with torpor. The heart acts feebly and irregularly, the breathing is slow, the eyes are fixed, the mouth open, and the countenance has an air of astonishment. While this state exists, the wounds do not bleed, but, on the contrary, present a pale or violet colour, and are soft and flabby. After a few days, the parts on which the patient reposes, as the great trochanter, sacrum, &c., often ulcerate. If re-action comes on, the wounds become inflamed, and furnish an exhalation from their surface, violet, sanguinolent, or fetid, and the symptoms of stupor disappear, an emphysematous swelling takes place, and extends to the trunk. The fever which ensues is extremely irregular, and is com-

posed of alternate chills and flushes of heat: fierce delirium, vomiting, and jaundice often ensue, together with suppression of urine. Generally, when it has arrived at this state, the patient soon expires. It would appear that, in these cases, there is such an exhaustion and disturbance of nervous energy, that the parts are rendered permanently incapable of resuming their office; hence, the irregularity of the phenomena which ensue. That the vitality of the parts is in a measure destroyed, would seem, moreover, to be manifest from the changes which ensue after death. Thus the body, and in particular that part which has been injured, has been observed to putrify with great rapidity, and decomposition was far advanced when it had only commenced in the bodies of those who had died of ordinary diseases.

In every case of stupor, where the shock has not too profoundly prostrated the powers of life, we can distinguish two stages: 1st, one of depression which gradually passes into the second, or that of re-action. In the first, we should endeavour to support the powers of life as much as possible by the administration of stimulants and cordials, varying them, however, according to the particular circumstances of the case. In some instances, where the stupor is slight, we should be particularly cautious in giving stimulants, as in many, when the re-action is developed, have cause to regret their too liberal administration. The wound should be first fomented with wine, spirits, or aromatic liquors. In fact, all prudent endeavours should be made to excite the system, and relieve it from the great exhaustion and debility under which it labours; and when re-action has taken place, it is necessary carefully to watch the symptoms as they rise; and our treatment must vary with them. Should much inflammation supervene, it must be subdued by the usual antiphlogistic means; but our bleedings should rather be small, and frequently repeated. If nervous symptoms ensue, antispasmodics are indicated. It is necessary, of course, to remove the patient as much as possible from the pernicious influence of moral causes. M. Dupuytren adds, that those who have suffered from stupor, are more exposed than others to the dangers of the ataxic affections.

Wounds by Air and Steam Guns.—These are seldom employed in war—as they possess many inconveniences, and their force of projection is not so great as that of gunpowder. The air gun, however, is sometimes used as an instrument of murder, where it is desired to avoid detection. This is rendered difficult, by the absence of light and noise on the occurrence of the discharge; and for this reason they have been prohibited in certain countries. Where a wound has been maliciously and secretly inflicted by one of these instruments, it may be desirable to know, if any criteria exist by which it may be distinguished from one produced by fire arms. The wounds of the latter are often soiled and blackened by the product of the decomposition of the powder, especially the charcoal. This, moreover, if often perceived on the clothes of the

wounded, and it may be accompanied by the presence of the wadding. The form and nature of the wound is the same, but there is generally less attrition in wounds from the air gun, owing to its propelling force being weak, than in those produced by gunpowder.

Wounds produced by Gunpowder.—The effect produced by balls or other hard substances when set in motion by the explosive force of gunpowder, is familiar to all. That the common wadding of a gun may produce very dangerous and even fatal effects, is however not so generally known. As the knowledge of this fact may be useful, and, as it has a practical bearing on medical jurisprudence, we shall mention two interesting cases related by M. Dupuytren: "Some years ago, a person, armed with a gun, while quarrelling with another man, fired upon him. The distance was short, and a wound was inflicted upon the abdomen;—this cavity was penetrated, and the small intestine wounded. As the patient died,—the case became the subject of judicial investigation.—M. Dupuytren was called upon to declare the cause of death. The prisoner insisted that the gun was simply charged with powder, and that his intention was only to frighten, and not to kill his adversary. His statement was true; on examination after death, no ball was found in the wound.

As much depends upon the swiftness and force of propulsion as upon the density of the moving body. Thus M. Paillard and Marx have determined, by experiment, that a ball of soft, chewed, and wet paper, is able to perforate a plank of considerable thickness: the same thing was observed of balls of wax, dough of bread, and the end of a candle;—grains of powder loose in the barrel of a gun, may be driven into the body to a considerable distance. We shall adduce one more instance of death by the wadding of a gun: "During the celebration of July, 1830, a merchant's clerk armed himself by with gun loaded merely with powder and wad. He discharged it about the distance of six feet upon a boy, with the intention merely of frightening him, without suspecting the occurrence of any accident; his error however was soon perceived; and the boy seriously wounded, was brought to the hotel dieu. There was a wound, the size of a five franc piece, upon the right flank, on a level with the crest of the ileum, five or six lines behind the anterior superior spinous process; the skin and superficial part of the muscles were taken away, as with a punch (emporte piece;) the bottom of the wound presented a black and bruised appearance. The iliac crest was uncovered to the extent of half an inch. There was some stupor, and very little hemorrhage. Under the influence of appropriate dressings and general treatment, the eschar separated, and the peritoneum was seen naked. Nevertheless every thing seemed to promise a favourable termination, when the patient having indulged too much in eating, the suppuration was suppressed, the wound inflamed, and chills and fever

supervening; he died on the fifteenth day. On dissection, the peritoneum was observed to form a tumour, of the size and form of an egg, at the bottom of the wound—the illiac crest to the extent of an inch was denuded, abscesses formed around the wound, and the periosteum of the illiac fossa was detached, and elevated by pus.—The peritoneum of this region was the seat of intense inflammation—the pleura of the right side was inflamed, covered by false membranes, and its cavity filled by sero-purulent fluid.—The right lung presented on its surface, and in its substance, a number of small abscesses—some were also observed in the inferior lobe of the left lung; the other viscera were sound.

Under the head of physical effects of projectiles, M. Dupuytren gives us much that is curious and interesting. Our limits will not, however, permit us to give much upon the subject. In the effects of balls upon bone, it has not unfrequently been observed, that the bone has been perforated, or that the foreign body may have remained in its substance, without giving rise to fracture. Particularly is this the case in young subjects, where the bones are as yet somewhat soft and yielding. M. Dupuytren relates several cases of this kind, and several have been observed by M. Paillard and Marx: "Kinderman, aged twenty-five, soldier of the imperial guard, was wounded by a ball, which traversed the tibia in its superior third. After suppuration was established, several dead portions of bone were extracted—a probe could be passed entirely through the limb; there was no fracture; and the patient perfectly recovered. A case occurred to M. Larrey, in which the arm was amputated at the shoulder joint, for a wound of this part inflicted by a ball; on dissection of the limb, it was discovered that the ball had passed through the head of the humerus without producing any fracture.

The modification which balls experience in their course, when striking upon water, has often been observed. If the angle of incidence is very great, that of reflection must correspond to it, and accordingly we have a series of skipping or bounding of the ball, on the surface of the water. If the angle is not so great, it may be reflected to a considerable distance; and balls which have been fired upon the water from one bank, have struck persons on the opposite side. We here cite a case which will illustrate this position, and may teach us the necessity of caution in similar circumstances:—"Two boys were firing at fish, upon opposite sides of the river, their guns being loaded with shot. One of them perceiving a fish, fired at it—at the same moment his friend, placed on the other side of the river, was struck in the eye by a shot. A small wound was perceived on the inferior eyelid, and an opening upon the globe of the eye, near the union of the transparent cornea with the selerotic. The sight of the eye was lost—violent inflammation took place, and only terminated by the bursting of the organ, and evacuation of the humours."

Several pages are dedicated to the treatment of wounds inflicted by fire-arms, and many interesting cases are detailed. Inasmuch as the

treatment does not present any thing peculiar, (with the exception, perhaps, of using incisions, to anticipate the occurrence of strangulation of the part, much oftener than is practised by most English and American surgeons,) and our limits do not permit us to make extracts from the cases, we shall refer the reader to the work itself, and pass to the consideration of amputation—the concluding subject of the first volume.

This is one of the most important topics which can engage the attention of the surgeon, and the preservation of the life of the patient, often depends not only upon his correct, but *prompt* decision. This is particularly the case upon the battle field, where, surrounded by a multitude of cases which demand his care and attention, and by the noise and tumult of battle, he has little time for deliberation, and must act quickly and energetically. Many circumstances are here to be considered, which have a most important influence over the welfare of the patient, and which seldom occur in private practice. Patients who have sustained injuries at home, and have recovered without amputation, would probably have died, had these occurred in time of war, and had they been subjected to all the fatigue, care, pain, anxiety, and want of sufficient attention, which they would often have been obliged to experience. Indeed, the circumstances accompanying the injury are often as important to be investigated, as the nature of the wound itself. With respect to some wounds, there can be no doubt, all judicious surgeons agreeing, as to the necessity of amputation. Such, for instance, are cases in which a limb is carried off by a cannon-ball, those in which a large joint has been disorganized, and where the principal vessels and nerves of a limb have been destroyed, with fracture of the bone, &c. But although some cases occur in which no doubt can exist, there are others which demand, as we have already said, all the judgment, and profound reflection, of the practitioner. Some cases of compound fracture, are of this nature. When the parts are much contused, and there are many splinters of bone scattered in the soft part, and particularly if there is a lesion of the principal artery or nerve, the indication for amputation is evident. If, on the contrary, the splinters of bone are few, and there is little injury of the soft parts, the limb can generally be preserved. In compound fractures, occurring in battle, most surgeons are in favor of amputation. Still, notwithstanding this general precept, there are exceptions. Cases of cure are recorded, where the injury has been exceedingly great, the patients refusing to submit to amputation. Cases of this kind are recorded by almost every writer on surgery. These, however, do not affect the general rule. "Some cases are so difficult of decision," says M. Dupuytren, "that it would be necessary for God to send angels upon the earth, to practise surgery, and decide rightly these doubtful cases." The division of the principal nerve of a limb, never can, of itself, demand amputation, except when tetanus ensues, and will not yield to ordinary means. "Amputation then presents a resource sometimes

useful, but most generally of little avail." "Where there is lesion of both the main artery and nerve of a limb, amputation is not absolutely called for; however, it cannot be denied that the chances of cure are small, inasmuch as the limb is deprived of its elements of nutrition, for a time at least, and of its sensibility and movements forever. If the soft parts are much injured, and especially if there be fracture of the bone, amputation becomes indispensable." The remaining observations of M. Dupuytren on this subject, are very interesting, but we must leave them, and pass to a subject equally difficult, viz.—the time at which amputations should be performed. Formerly there was much difference of opinion on this subject, some surgeons contending for immediate amputation, others for postponing it until the symptoms of inflammation, &c., had disappeared. Among the advocates of this latter opinion, was M. Faure, to whom the prize dissertation on the subject was adjudged; but the experience of almost all modern surgeons is in favor of immediate amputation in cases of gunshot wounds. By immediate, however, it is not meant that the operation should be performed instantaneously, or before the first symptoms of depression, or prostration, shall have subsided. The shock of amputation, added to that which the system has already sustained, cannot fail to be injurious, and often fatal. We should endeavor to select a period intermediate to that of depression and reaction, so that we may not run the risk of extinguishing the vital spark, or, by delaying too long, induce the inflammatory state of the system, by the excitement of the operation. When the warmth has returned to the surface, the pulse has regained some force, the intellectual faculties are in operation, and the courage of the patient has returned, we may then operate. By so doing we save the patient from the long and tedious suffering, and risk of life, to which he would have been subjected, should we have previously determined to run the risk of secondary amputation. According to M. Dupuytren, and most surgeons, this period generally extends from one to six or eight hours, depending, of course, upon the constitution of the individual, and the nature of the injury. With regard to the mode of amputation, and the dressing to be employed, M. Dupuytren adopts the usual plan, and prefers union by first intention. We have endeavoured, thus far, to give the reader a general idea of the nature of the work, and if it should appear that some parts have not been sufficiently dwelt upon, it was because they presented nothing new, or with which the profession have not long been familiar. We have sought to select such parts, as it was hoped, might prove interesting. In the next volume, wounds of the different regions will be considered.

C. E. I.

COLLECTANEA.

Apis vero ratio media est; quæ materiam ex floribus agri et horti elicit, sed tamen eam propria facultate vertit et digerit.—Nov. Org.

1. *Decussation of the Posterior or Sensitive Chords of the Medulla Oblongata.* By Sir Charles Bell. We have noticed a fact of more than ordinary importance, as reconciling the occurrence of symptoms with our knowledge of anatomy. Where the posterior tract, descending from the cerebrum, has reached the point of the medulla oblongata, just opposite to the decussation of the corpora pyramidalia on the fore part, we described a coalescence. We have already stated, that when we proceed to separate the columns on the side of the slit called calamus scriptorius, we see small, neat, and regular filaments, as it were, interlacing and joining the two columns. But when we examine further, we perceive that these filaments belong to a plate of fibrous texture which passes in the central plane from before backwards. This striated septum stops or is interrupted by the union of the columns of sensation; and now attending to the fibres of these two columns, we find them to decussate with an interweaving as distinct as that of the corpora pyramidalia or anterior columns. After this union and decussation has taken place, we may trace the nervous matter downwards in the two lateral portions of the spinal marrow, covered by the columns, which are the most posterior of all, and which descend from the cerebellum under the name of corpora restiforma.

Make a transverse section of the crus cerebri, half an inch anterior to the pons. Looking on the cut surface of the lower portion, a discoloured line, of a semi-circular figure, will be seen: anterior to this line is the motor column; posterior to it, the sensitive. Put the ivory handle of the knife into this discoloured part; it will prove softer than the part anterior and posterior to it. Thrust back the posterior column until it is seen descending behind the posterior transverse septum of the pons (the anterior column passing before.) You have now a very large portion of nervous matter, which you trace towards the medulla oblongata, and between the processes of the cerebellum. Now observe the two convexities, which are distinct columns, and which pass under the valvula cerebri, and the corpora quadrigemina, and by their approximation form the central slit of the calamus scriptorious. These columns are nearly as large, and as distinct, as the pen I hold.

It is not every person who has the delicacy of hand to display the septum which is between the columns; but even with a coarse hand, let him put in the probe between the columns, he finds it easy to separate them down to the delicate ligaments which form the point of the calamus. This point is firm; it is covered with a triangular-shaped layer, of a gray colour. Here he will find that there is a very firm union, not only of the two sides, but of this superficial layer, to the parts beneath.

This is so plain a matter, that a blind man may find it. I mean not this tauntingly; but if the dissector were blindfolded, or looking another way, on putting the probe, or curette (for that is the instrument I use,) either between

the columns above or below, and moving it towards the decussation, he would feel the resistance, so firm is the texture where the decussation takes place.

So far there can be no mistake. Let the dissector push aside the processes called posterior pyramids, and the inferior pedunculi of the cerebellum; and thus opening the spinal marrow, prosecute the cerebral columns, which he had previously traced from the crus cerebri.

Dissecting up the coloured matter, (which is itself a firm bond,) he finds just under this that the columns coalesce, and form a sort of neck. The narrowness here is owing to the closer union of the fasciculi where they decussate. After this union they separate, and proceed down the spinal marrow; and it is easy to trace their filaments into the posterior roots of the spinal nerves.

When this view is made, the course and decussation of these columns is much more distinct than that of the anterior, or motor column, and the union and separation of a different form, and more easily demonstrated, than the decussation of the anterior columns. These columns are larger than the anterial pyramids; they cannot be the product of a part of the anterior, or true pyramidal bodies; they are seen descending continuously in their whole length, from the back of the pons to the spinal nerves; and a most interesting portion of the medulla oblongata is interposed at this part between the columns of motion and sensation.

There is another very satisfactory mode of displaying the course of the posterior cerebral columns, which is, by opening the sheath in which they run, and taking away the longitudinal fibres altogether, leaving the septum between them. At the point where, in my paper, I have described the septum as terminating, its texture rather opens, and forms oblique passages, through which divisions of the columns pass from side to side.

In the sheath, as seen on lifting the mass of the posterior column, a passage is left for a process to join this posterior column, and if this be followed through, it will be traced from the superior and central portion of the anterior pyramidal body. The connections between the anterior, posterior, and intermediate columns of nervous matter, as I have observed in my paper, are subjects of great interest. It is this part of the anatomy which will form the subject of my next paper to the Royal Society.—*London Med. Gaz. Feb.* 1835.

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2. *On the changes produced in the composition of the Blood by repeated bleedings.* By Thomas Andrews, Esq.—The object of the following experiments is to determine with precision, the changes which are produced in the composition of the blood, by repeated abstractions of large quantities of it from the general circulation. In the human subject, opportunities seldom occur of procuring proper specimens for examination, although the operation of venesection is so frequently performed; as in those cases where it requires to be repeated at short intervals, the blood is generally in a morbid state. Instead of waiting for such casual occasions, I directed my attention to those animals in which the composition of the blood is nearly the same as in man, conceiving that similar results would in either case be produced. I selected the blood of calves for the purpose of experiment; and as it is the practice of butchers in this country to bleed these animals several times before they are slaughtered, I availed myself of this circumstance to procure suitable portions

of blood. The animal is bled from a large orifice in the jugular vein, till symptoms of syncope appear, and the operation is in general repeated at intervals of twenty-four hours. It is once fed between each operation upon a mixture of meal and water, but this is often omitted before the last bleeding.

The appearance of the blood becomes greatly altered by the successive abstraction; the crassamentum is at first very large, and a portion of the red globules are unattached to it, but it progressively diminishes in bulk, while its consistency increases, till upon the fourth bleeding, it appears a small contracted ball immersed in a large quantity of serum, adhering to the stopper of the vessel in which it is contained, and presenting on its external surface an exact cast of the interior of the vessel.

The following analyses were performed by the same method that I formerly employed in a set of experiments on the blood of the cholera patients, which were published in the Philosophical Magazine for September, 1832. They are nearly all a mean of two separate analyses, which seldom differed from each other more than 0.5 per cent.

A calf was bled four times; between the first and second bleedings a week elapsed, but the rest took place at intervals of twenty-four hours, and the animal was fed between each operation. The composition of the serum and blood at each bleeding is exhibited in the following tables:

SERUM.

	FIRST.	SECOND.	THIRD.	FOURTH.
Water	92·19	93·96	93·81	94·18
Albumen and Salts	7·82	6·04	6·19	5·82
	100·00	100·00	100.00	100·00

BLOOD.

	FIRST.	SECOND.	THIRD.	FOURTH.
Water	81·36	85·49	87·41	89·25
Albumen and Salts	6·89	5·50	5·77	5·52
Red Globules and Fibrin ..	11·75	9·01	6·82	5·23
	100·00	100·00	100·00	100·00

The serum had at the third bleeding a specific gravity of 1.020, and at the fourth, of 1.017. At the third bleeding, the specific gravity of the blood itself was 1.031.

The next calf whose blood was examined was nine weeks old. I did not procure any blood from the first bleeding. The third bleeding was twenty-four hours after the second, and during that period the animal was once fed; twelve hours afterwards it was bled a fourth time, but it received no more food:

SERUM.

	SECOND.	THIRD.	FOURTH.
Water	93·32	94·39	94·59
Albumen and Salts	6·68	5·61	5·41
	100·00	100·00	100·00

BLOOD.

	SECOND.	THIRD.	FOURTH.
Water	82·05	89·14	88·92
Albumen and Salts	5·85	5·29	5·06
Red Globules and Fibrin	12·10	5·57	6·04
	100·00	100·00	100·00

The albumen and salts, it is evident, decrease at each bleeding; the diminution is, however, very variable, and even after the fourth time does not amount to one per cent. and a half. In the globules, the same diminution takes place, but to such a degree that they are at least reduced to less than one-half their original quantity. To this principle a remarkable exception occurs in the composition of the blood taken at the last bleeding of the second calf, where the globules are slightly increased above the preceding analysis; but it will be observed that the animal received no food during the intervening period, from which the blood might obtain a fresh supply of serum, while the tendency of the different excretions of the animal was to drain from the circulating mass its aqueous part, and thus to increase the apparent quantity of the globules. This explanation is confirmed by the following analysis.

A calf, three weeks old, was bled twice before it was killed; twelve hours elapsed between the two bleedings, during which time it obtained no food:—

SERUM.

	FIRST.	SECOND.
Water	92·48	93·35
Albumen and Salts	7·52	6·65
	100·00	100·00

BLOOD.

	FIRST.	SECOND.
Water	82·48	83·47
Albumen and Salts	6·70	5·95
Globules	10·82	10·58
	100·00	100·00

The globules have here, it is true, diminished at the second bleeding, but so slightly, that we may attribute this circumstance to the unassimilated chyle which must have been present in the system. In the former case, the animal had been exhausted by previous depletions, and hence possessed no store from which the blood could derive even a small portion of serum, as in the latter instance.*—*London Medical Gazette, for Feb.*, 1835.

* Records of General Science.

3. *Poisoning with Strychnine.* By Dr. RICHTER.—Two blisters were applied to an individual affected with hemiplegia, and the abraded surface dressed with one-eighth of a grain of the nitrate of strychnine. The dose was gradually augmented to a grain and a half, when alarming effects, resulting from the poisonous agency of the remedy, were produced. The raw surface was carefully cleansed of all the particles of the strychnine that had not been absorbed, and two grains of powdered acetate of morphia were applied. All the urgent symptoms of intoxication immediately subsided, and no additional treatment was found necessary.—*Medicinische Zeitung, Sept.* 1834—*and Journ. des Connaissances Med. Chirurg., Mars,* 1835.

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4. *Travels in Switzerland and Italy.* By M. ROUX.—At the request of the members of the Academie de Medécine, this distinguished surgeon related to them at several of their sittings, the principal points for observation in the localities through which he passed in his tour in the above named countries, with, of course, a special reference to the medical affairs.

Commencing with Switzerland, M. Roux went a great length into the practice of M. Mayor of Lausanne, particularly as to his mode of surgical bandages. M. Mayor denies the spontaneous luxation of the femur, and attributes the shortening of the limb to an irregularity of the pelvis and the vertebral column—an opinion from which M. Roux differs, though he thinks that further researches should be made on the subject.

At Geneva, a second M. Mayor made some important communications to the traveller. The first was regarding the *hydrocele of the neck of* M. Maunoir, which is a cyst of the thyroid gland; it is endemic in Switzerland, but is never observed in France. It commences in one side of the gland and gradually extends to the other. When the tumour bursts or is punctured, a thick coffee-coloured fluid escapes; this is succeeded by a sanguineous effusion into the cyst, or else it is poured out: the effusion is an exudation, and not the consequence of any ruptured vessel. When the cyst is filled, the bleeding stops, in consequence of the compression of the parietes. M. Mayor, therefore, adopts the following treatment. Having emptied the cyst by means of the trocar, he stops it with agaric in order to prevent the oozing around the canula, which he also stops hermetically. The secreted blood coagulates, subsequently becomes fluid, and is then allowed issue by opening the canula. The parietes of the cyst afterwards suppurate and finally adhere together; the cure is somewhat prolonged, but is certain.

M. Mayor has also paid particular attention to *invaginated necrosis,* which is more frequent in Geneva than in Paris. It is generally considered best to wait as long as possible before the operation for removal of the sequestra, which is more loose and thin as the affection is of longer standing. M. Mayor on the contrary, thinks that the separation is complete from the commencement of the disease, and previous to the complete solidification of the new bone; he therefore is of opinion that the operation should be performed at an early date, because the instrument acts with greater facility on the non-solidified bony envelope.

Proceeding to Italy, M. Roux, examines in succession the institutions, the noted men, and the circumstances of the country. In the first are compre-

hended the academies, universities, and hospitals. M. R., it is necessary to remark, only visited the north of Italy, Milan, Padua, Florence, Brescia, Venice, but did not reach Rome and Naples.

With regard to the academies, M. Roux states that he was not able to visit them, and that he needed no consolation on that account.

In France there is but one university: in Italy there is one, and sometimes several, in each small state. Thus, there are seven in the Roman states; and the confusion in this particular is so great, that the doctors of the university of Sienna, for example, cannot obtain the license to practise until they have studied two years at Florence, where there is no university, but where the means of instruction are much more perfect.

Each of the universities include four faculties: that of medicine comprehends pharmacy. The principal ones are those of Pavia, made illustrious by Scarpa; of Padua, where Fabricius ab Aquapendente and Morgagni flourished; of Bologna, which is much fallen off since the late political troubles, the consequence of which was its dismemberment. It may be easily imagined that each of these universities is far below that of Paris in the number of students. The largest number in any of them scarcely reaches four or five hundred students, whereas that of Paris includes more than three thousand, that is, more than all the Italian students together. The mode of teaching is pretty nearly the same as in France, with a few slight modifications. Eye-surgery, as a separate department, has been recently introduced from Germany, and the inspection of this special teaching, only tended to confirm M. Roux in the prejudices he had long entertained against these mincings of science. It is worthy of remark, that each professor is obliged, in his lectures, to follow the plan and order laid down in the work which he uses as a text-book, a species of intellectual slavery much reprobated by the author, but in which he found a cause for exultation, since these works are, for the most part French productions. These faculties admit three orders of practitioners; doctors of medicine, masters of surgery, and *petty* surgeons, the latter corresponding to the French *officiers de santé*.

Most of the universities are provided with magnificent collections, among which those of Bologna and Florence are particularly fine. That of Pavia is remarkable for the anatomical preparations; that of Florence for wax mouldings. Each hospital has a dissecting theatre. The students are not allowed to dissect in the first year of study, but are confined to looking at the older students. At Florence, there is also a superb collection of works referring to the physical sciences; in it the instruments used by Galileo, Galilei, and Toricelli, are preserved: they are about to deposite them in a particular cabinet. Indeed, the Italians profess a religious veneration for their great men, and erect monuments and statues to them. This enthusiasm, however, is sometimes outrageous; nor was it without a painful sensation that M. Roux beheld the head of Scarpa macerating in alcohol, among other anatomical preparations. Apropos of this subject, he relates a peculiarity found on the post mortem examination of the illustrious Italian surgeon, who previous to his death, at eighty-four years, had lost the memory of proper names; on examining the contents of the cranium, a considerable disorganization of one of the corpora striata was found.

The organization of the hospitals in Italy presents some remarkable peculiarities. They are almost all erected in advantageous positions, and have large well ventilated wards: those for surgical diseases are separate, and are generally less carefully attended to. The great hospital of Milan, probably has not an equal in Europe in regard to the architecture and extent: it contains with ease 1,800 patients. These hospitals, moreover, include separate chambers for such as can afford to pay for them.

The medical hierarchy is in full vigour in the Italian hospitals: there are honorary physicians, assistants, sub-assistants, first physicians, directors of the establishment, &c. In difficult cases the physicians meet in consultation under the presidency of the chief. It may be remarked that in this classical country of devotion, the hospitals are not deprived of the services of the *religieuses*. The union of powers in the director, who is generally a distinguished physician, whom age has rendered incapable of practice, simplifies exceedingly, and facilitates the arrangements of the hospitals.

Though Italy is far from being devoid of distinguished medical men, there are none of them whose reputation can be balanced against that of such men as Scarpa, Vacca Bellinghieri, Palletta, and others. Of those possessing the greatest name at present is professor Panaizz of Pavia, who in anatomy at least, is proceeding in the brilliant pathway of Scarpa.

M. Roux paid particular attention to the state of normal and morbid anatomy, midwifery, and surgery, towards which his tastes inclined him. Anatomy is cultivated in Italy with the greatest ardour; the country abounds with museums, with which those of France can stand no comparison. The museum of Pavia is especially remarkable, enriched as it is with the numerous undertakings of the great Scarpa. A vast number of beautiful preparations of the structure of the bones are particularly prominent. It also contains the lower limb of the individual on whom Scarpa first put in practice his mode of operating for aneurism, which, as is known, is by ligature in the inguinal space; the patient survived the operation twenty-five years. The successor of Scarpa, Panizza, has repeated Mascagni's experiments on the lymphatic system. His discoveries on this head have been more particularly interesting with regard to the lymphatics of the generative organs. Nor are his researches into the nervous system less important, one of the preparations shewing with the greatest exactness the connection of the nerves of the great sympathetic with the anterior branches of the spinal nerves. But a still more important result of his injections is the proof, that the serous membranes are eminently vascular—a fact denied by many physiologists and anatomists, who look upon those membranes as inorganic, as a kind of epidermis placed over the vascular tissues beneath.

At Bologna, M. Roux was struck with the preparation of a head of immense proportions that had belonged to a body of ordinary size: the individual had exhibited nothing unnatural in his intellectual faculties.

At Florence, in the cabinet arranged by M. Zanetti, M. Roux saw the following preparations. 1. A skull perforated by a dagger, which caused the inner table to project an inch into the cerebral cavity, without however inducing any particular cerebral lesion; the person survived a long time with the steel fixed in the bone. 2. Two pieces, which shewed to demonstration the indentation of the cranium, without fracture. 3. The womb and pelvis of

a woman who survived one Cæsarean operation, but died after the second. 4. The head of a hydrocephalic child, containing thirty-two pounds of water. 5. A radius, the diaphysis of which is covered with a bloody funguous tumour which had been mistaken in life, for an aneurism.

In all the Italian faculties there are obstetric clinical courses. At Milan, M. Roux, saw two placentas continuous with each other: it had occurred in a twin case, and is a fact, the existence of which has been frequently denied; it justifies the practice advised by M. Capuron of tying the cord of the first born child. The director of the maternity of Milan, M. Milly, told M. Roux that out of several Cæsarean operations he had been twice successful. There is in the same place a very fine collection of ill-shaped pelvises. M. Milly observed, that when the deformity of a pelvis consists in an obliquity of one side coinciding with a narrowing of the same side, there is always a complete ossification of the corresponding sacro-iliac symphysis; so that symphyseotomy would prove useless in such a case.

With regard to surgery, the Italians care little for French or other doctrines; those of Scarpa are exclusively predominant. Lithotrity is scarcely known; M. Roux only met one surgeon that had performed it twice. But what is most astonishing is, that the operation for cataract by extraction is totally unknown in Italy. At Florence M. Andrini shewed M. R. an individual in whom he had cured an aneurism of the crural artery by Valsalva's method, the general debility not allowing of his operating. At Venice he saw a man who had fallen from a high scaffolding with the back of his neck against a stone two square inches thick, which divided the skin and muscles and forced on to the vertebræ, without fracturing the bones and causing mischief of the brain or cord; the man was perfectly recovered. M. R. also saw a leg that had separated by sphacelus, after compound fracture; likewise, at Milan, a varicose aneurism of the bend of the arm, cured by tying the brachial artery above it. M. Roux succeeded in reducing a complete dislocation of the fore arm, that had continued for five months. It had every appearance of being anchylosed, but, having been successful in similar cases before he attempted and effected the reduction; the arm was restored to its functions.—*London Medical and Surgical Journal, Feb.* 1835.

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5. M. Bouniceau asserts, that migraine, (a *species* of *neuralgia*) is seated in the nerves distributed to the integuments of the cranium, and that it can be promptly relieved by compressing the course of the frontal nerve, over the superciliary arch, with the thumb; or when the pain is severe in the occipital region, by making pressure behind, between the atlas and dentatus.

[*Journ. des Connais. Med. Chir. Mars,* 1835.

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6. M. Castel asserts, that the reason why the right side of the heart retains its irritability longer than the left is, because it receives a greater number of nerves; and M. H. Cloquet confirms this statement by the declaration, that he had seen in the anatomical museum of Berlin, a heart, the right side of which was supplied with two or three times the number of nerves which were distributed to the left.—*Ib. Février,* 1835.

MEDICAL EDUCATION.

Present System of Medical Education, and the arrangement of the Medical Profession, in the Austrian States.

The laws by which the profession in Austria is governed, were enacted in the reigns of Maria Theresa, of Joseph II., and of the Emperor Francis I. The object is the improvement of medical education in the schools, the supplying of suitable practitioners for the people, and the regulation of the *pharmaciens*, who alone are permitted to deal in drugs and medicines. They further contain clauses of great severity for the checking of charlatanism; and in order that the magistrates may be fully acquainted with every thing relating to hygiène and medical police, appointments are provided in the several districts for a body of well instructed and experienced medical persons, specially entrusted with this duty.

I. SYSTEM OF EDUCATION.

There is no distinction made, in the Austrian universities, between the education of physicians and that of surgeons. The students destined for either pursuit must attend the courses of both branches of the healing art, and not until they have completed their curriculum are they allowed to choose which they shall practise: but they may practise both if they choose, and be found properly qualified.

The qualification for a doctor of medicine or surgery, consists in a five years' attendance of lectures in some national university; the three first years being devoted to the study of the collateral sciences and the theoretical parts of medicine, and the last two being employed in special therapeutics and practice, at the bed-side of the patient. The following is the order in which the several branches are studied:—

First Year.....	1st Semestre.	A general introductory course of medicine and surgery. A course of anatomy. A course of special natural history.
	2d Semestre.	The courses of anatomy and natural history repeated. A course of botany.
Second Year.	1st Semestre.	Anatomy and physiology of a more advanced character. General chemistry.
	2d Semestre.	Anatomy and physiology continued. Pharmacy and animal chemistry.
Third Year....	1st Semestre.	1. General pathology, (etiology, semeiology, and general therapeutics.) 2. Materia medica and chirurgica, dietetics, and art of prescribing. 3. Theoretical surgery (general and special pathology of surgical disorders.) Midwifery.
	2d Semestre.	Courses 1, 2, 3, preceding, continued. Bandages and surgical instruments, from June till the end of the medical year.
Fourth Year.	1st Semestre.	1. Special therapeutics of internal maladies. 2. Internal clinique.
	2d Semestre.	1 and 2 preceding continued. Veterinary medicine.
Fifth Year.....	1st Semestre.	1 and 2 of preceding year continued. Forensic medicine.
	2d Semestre.	1 and 2 continued. Medical police.

It is to be observed, with reference to clinical instruction, that, both in Austria and Prussia, students who have completed their theoretical courses are divided into practising pupils and assistants; the former being entrusted with the treatment of a certain number of patients, whom they visit under the inspection of the clinical professor. If they acquit themselves well, he does not interfere; if not, he instructs them in the questions which they ought to put. After each visit, the professor interrogates the pupil as to the class, order, and species of the malady, the prognosis, and the indications. If the pupil be right, he is requested to prescribe aloud. An assistant is attached to each practising pupil, who goes round with him, and in the course of six months becomes a practitioner himself.

The lectures on physiology, pathology, materia medica, and special therapeutics, as well as the clinical remarks at the patient's bed-side, are delivered in Latin: in all the other courses, the German is the language employed. In Hungary, Poland, and Italy, the language of each country respectively is used.

Previous to admission to the medical schools, the pupil must produce a certificate of having attended a three years' course of humanity in some national school; and pupils are arranged, in general, in three classes; the first consisting of those who have answered best, and obtained the title of *eminent*, the others according to their respective merits. Diligence and moral conduct are high recommendations in the certificate for admission: in fact, the law expressly declares that this must be seriously attended to, in order to exclude, as much as possible, from the study of an art so important and difficult as that of medicine, all those who are not more or less distinguished by their attainments and good conduct.

Matriculation is not attended with any expense.

Students are forbidden to smoke cigars, or to frequent drinking-houses.

No student can advance to a higher class without having attended that immediately preceding it; and he must pass an examination. If his answering be but second-rate, he must go through his last courses again; and if upon another trial he be found deficient, his name is erased from the list of medical students, and he is precluded from entering any other national university.

Every professor is bound to examine his class once a week publicly, for at least half an hour. The results he must note down, for the better arrangement of the classes. At the end of every semestre, the pupils are examined in their previous courses: the first examination takes place in the latter part of March, the second towards the end of August; the particular day and hour being announced a month previously. The director and a commissioner of instruction are obliged to attend at these trials; and the professors are enjoined by the law to be as strict as possible, and not to allow themselves to be carried away by an ill-judged indulgence. It is during the first year they are expected to be most severe, in order to get a timely riddance of those students who are dull and negligent, and to secure the state against the danger of having ignorant physicians or surgeons admitted to practice. In the certificates given on these occasions, not only the abilities of the pupil are set forth, but his moral conduct is noted.

The fees paid by each student amount to 30 florins (about 3*l.*) a year—3 florins a month. These charges go chiefly to the support of a certain number

of poor but respectable students, who belong to large families of straightened means, and are distinguished for their diligence and good behaviour.

In order to be admitted to the final examinations, the pupil must shew that he has acquitted himself well at the weekly ones, as well as at those at the end of each semestre. The Dean of the Faculty is obliged to pay special attention to this rule, or otherwise forfeit 20 florins to the general fund. Two students cannot be examined at the same time. The judgments of reception are *Satis bene*, or *Valde bene*. If two professors vote for the candidate's rejection, he must be examined over again at some future time, going through certain courses prescribed to him in the interval. If he decline this, he is not entitled to have his examination fees refunded to him; but if he submit to a second trial, he has nothing additional to pay. Not so, however, if he be rejected a second time: he must pay his fees afresh for a third examination. Nobody can be examined more than three times: a third rejection disqualifies the candidate from ever practising in Austria.

Previous to the admission of the candidate to examination, he must produce an account of two medical cases treated by himself, and also a report in legal medicine. These papers must be forwarded to the Dean, who communicates them to the examiners, and upon their approval the candidate is admitted to the final *rigorous* examinations.

The rigorous ordeals for the diploma are two in number. The first is an examination in anatomy, botany, natural history, physiology, general and special pathology of external and internal diseases, semeiology, and general therapeutics. The examiners are the Dean, the President of the Faculty, and the professors of anatomy, botany, natural history, physiology, and pathology.

For the second, the subjects are, chemistry, forensic medicine, ophthalmology, materia medica, art of prescribing, and clinical practice; and the examiners are the professors of chemistry, forensic medicine, ophthalmology, and materia medica, together with a physician unattached to the faculty. In Vienna, the latter person is the vice-director; and in the provinces, some practising physician, not a professor.

The candidate may answer, as he pleases, either in Latin or in the vernacular.

Having passed these examinations, he is obliged to write a dissertation on a medical subject. He must also add some theses, which he has to defend publicly against three disputants—doctors of medicine or surgery. The Dean, and the President of the Faculty, as well as four professors, must attend the reading of the dissertation, and copies of it are to be distributed to all who may be present: the said dissertation and theses being written and defended in German, if the Dean grant leave; but this is not very usual, nor without some reasonable pretext.

The expenses of these final *rigorous* examinations are—for the first, thirty-five florins, five florins being paid to each examiner; for the second, sixty-three florins, nine florins to each examiner. The fee to the censorship, exercised by each of the professors in turn, is four florins fifty kreutzers; for the admission, &c. sixty-nine florins; to the president of the dissertation, twenty-seven florins: in all, 199 florins, (nearly 20*l.*)

If the candidate seek the diploma of doctor of surgery,—1st, He must be examined in anatomy, chemistry, materia medica, the art of prescribing,

forensic medicine, ophthalmology, and the theory and practice of surgery; 2d, He must perform two operations on the dead body publicly, and in presence of all the professional men and pupils who choose to be present. Previously to operating, he must give a history of the process which he is about to adopt, describe it, point out the different modes in which it may be performed, distinguish the several advantages and disadvantages of each mode, note the indication and contra-indication, shew how the instruments and bandages are to be employed, &c.: in short, he must act with all the care and attention he would use with the living.

The expenses of these examinations for the surgical diploma are—for the first, seventy-two florins—of which the seven senior examiners receive nine florins each, the junior half that sum; for the second examination, the candidate pays fifty-four florins, nine florins to each examiner. The admission is sixty-nine florins thirty kr.; and the sum total, 195 florins 30 kr. (about 19*l.* 10*s.*)

If a doctor of surgery wish to obtain the degree of doctor of medicine, he must be examined—1st, in botany, physiology, natural history, general and special pathology, therapeutics, and semeiology of internal diseases; 2d, in practical matters relating to internal medicine. For both these examinations, the dissertation, and the admission fees, &c., the expenses are 114 florins, 30 kr. (about 11*l.* 10*s.*)

If a doctor of medicine wish to be admitted to surgery, he must be examined—1st, in the theory and practice of surgery; 2d, in the public test required of every candidate for the surgical diploma. The expenses are 110 florins (about 11*l.*)

Non-catholic candidates are admitted to degrees by dispensation only; but then there is no oath administered at variance with the religious tenets or observances with the parties.—*London Med. Gazette.*

Editorial Notices and Acknowledgments.

Introductory Address delivered at the opening of the Medical College of the State of South Carolina. November 10th, 1834. By James Moultrie, junr., M. D. Published at the request of the class. (*From Professor Frost.*)

We have been much gratified by the perusal of this excellent and appropriate lecture; and our pleasure has been heightened, by the information we derive from a printed catalogue of the students who attended the last course of the college, from which we learn, that the class has increased since last year, from 104 to 127; exclusive of eight students from the Charleston college, who attended the lectures on chemistry.

Application of the Physiological Doctrine to Surgery. By L. J. Begin, M. D., Ex-Surgeon aid-major to the military hospital of Instruction of Metz; Editor of the Chirurgical part of the memoirs of military medicine, Surgery and Pharmacy, &c. &c. Translated from the French. By Wm. Sims Reynolds, M. D. Charleston, E. J. Van Brunt, 1835. (*From the Translator.*) We shall notice this in our next.

Errata.—In Dr. Lebby's paper ,page 310, vol. 1, seventh line from the conclusion, insert "externus" after "hydrocephalus." In the same paper, page 309, "Dr. Thos. Logan," should be Dr. Thomas Legaré.